Working Paper

Document de travail

Working Group on
International
Macroeconomics

Groupe de travail
en macroéconomie
internationale

Department of Finance

Ministère des Finances

101-06213/

INTERMOD 2.0:
Model Specification and Simulation Properties

by

Guy Meredith

Working Paper No. 89-7

Economic Studies and Policy Analysis Division
Fiscal Policy and Economic Analysis Branch
Department of Finance
Ottawa, Canada, K1A 0G5

This paper has been prepared as part of the research program of the Working Group on International Macroeconomics at the Department of Finance. I am grateful to the members of that group for their participation in the development of INTERMOD, especially to John Helliwell and John Sargent for their continuing encouragement and support. An earlier draft of this paper benefitted from the comments of Robert Lafrance, Paul-Henri Lapointe, Mary MacGregor, and John Sargent. A large debt is also owed to the developers of MULTIMOD at the I.M.F., and particularly to Paul Masson and Steve Symansky, whose continued collaboration has made this work possible. The views expressed here are those of the author and do not necessarily reflect the views of the Department of Finance. Any suggestions for correcting or extending the work are appreciated.

Working papers are intended to make analytic work undertaken in the Department of Finance available to a wider readership. They have received only limited evaluation and do not necessarily reflect the views of the Department of Finance. Comments on the working papers are invited and may be sent to the author(s). They are circulated in the language in which they were prepared.

ABSTRACT

This paper describes the structure of version 2.0 of INTERMOD, a linked international model constructed at the Department of Finance using annual data. Version 2.0 represents further development of the original version of the model that has been used for the analysis of international macroeconomic issues over the past two years. Our model also follows closely the structure of the most recent version of MULTIMOD, the IMF's policy-simulation model. INTERMOD employs a highly-aggregated and common structure for each of the G-7 countries and an aggregate of the eleven smaller industrial countries. The equations for the Rest of the World reflect institutional factors that are specific to this group of countries. INTERMOD can be run under either adaptive or model-consistent expectations regimes, and can be used in both mainframe and PC environments.

The discussion of the model structure starts with a description of aggregate demand, focusing on consumption and wealth, investment, the trade sector, and the role of fiscal policy. Aggregate supply is represented by an expectations-augmented Phillips curve; the financial sector determines interest rates and the exchange rate. Several variables depend importantly on expectations of the future path of the economy; under model-consistent expectations, these variables can "jump" in response to policy announcements, reflecting the implications of the future path of financial and real variables. The description of the model structure is followed by a presentation of simulation results for standard fiscal and monetary shocks under adaptive and consistent expectations. The paper concludes with a discussion of possible applications for the model.

RÉSUMÉ

Ce document présente la structure de la version 2.0 d'INTERMOD, un modèle international mis au point par le ministère des Finances à partir de données annuelles. La version 2.0 est une version modifiée du modèle original, qui depuis deux ans est utilisé pour analyser des questions de macroéconomique à l'échelle internationale. La structure de notre modèle ressemble aussi à celle de la plus récente version de MULTIMOD, le modèle de simulation des politiques adopté par le FMI. INTERMOD présente une structure commune et fortement intégrée pour chacun des pays du Groupe des Sept et pour l'ensemble des onze petit pays industrialisés. Les équations réprésant le reste du monde reflètent les facteurs institutionnels propres à cet ensemble de pays. INTERMOD peut être utilisé aussi bien dans un régime adaptif que dans un régime d'attentes rationnelles, et il est utilisable aussi bien sur un micro-ordinateur que sur un ordinateur central.

L'examen de la structure du modèle débute avec une description de la demande globale et porte principalement sur la consommation et la richesse, les investissements, les échanges commerciaux et le rôle de la politique budgétaire. L'offre globale est représentée par une courbe de Phillips avec anticipations inflationnistes. De son côté, le secteur financier détermine les taux d'intérêt et le taux de change. Plusieurs variables dépendent en grande partie des attentes à l'égard de l'évolution de l'économie; d'après le modèle avec attentes rationelles, ces variables peuvent changer brusquement suite à l'annonce de changements de politique, résultant de l'influence de l'évolution future des variables financières et réelles sur la période en cours. Suit une description des résultats de simulations portant sur des chocs budgétaire et monétaires, selon que les attentes soient de natute rationelle ou adaptative. La dernière partie comporte une discussion de certaines applications possibles du modèle.

1. Introduction

This paper discusses the structure and simulation properties of version 2.0 of INTERMOD, the Department of Finance's multi-region simulation model of the world economy. INTERMOD 2.0 reflects further development and extensions of the original model as documented in Helliwell et al (1988). INTERMOD continues to follow closely in specification and properties the IMF's MULTIMOD.[1] While both models now have the same level of geographic disaggregation,[2] there remain three significant differences: INTERMOD can be simulated using either adaptive or model-consistent expectations, whereas MULTIMOD incorporates only model-consistent expectations; the method by which the consistency of world trade flows is achieved is different; and INTERMOD can be simulated using either mainframe or personal computers, whereas MULTIMOD is simulated only in a mainframe environment.

The next section of the paper describes the new model structure, with emphasis placed on areas that have changed from version 1.1.[3] The most important differences are:

- Consumption and investment are now based on model-consistent expectations of future economic activity and prices.
- The policy-reaction function that determined short-term interest rates has been eliminated from the model; interest rates are determined by direct inversion of the money-demand function.
- Inflation expectations have been made fully endogenous and homogeneous of degree one in observed rates of inflation.
- The representative long-term bond in the model is now treated as an asset with a maturity of 10 years, consistent with the model database, as opposed to an infinitely-lived consol.
- To simplify the trade sector, the allocation of nominal and world trade residuals has been eliminated. The dependent variable in the export volume equation is the share of nominal exports in total world imports.
- Traded-goods prices have a direct effect on the deflators for absorption and final output.

---

1 See Masson et al (1988) and (1989).

2 One of the original motivations for developing INTERMOD was to disaggregate the four smaller members of the G-7 (i.e. France, the U.K., Italy, and Canada). Since that time, the IMF has expanded its model to incorporate separate blocks for each of these countries.

3 See Helliwell et al (1988) for a description of the 1.1 version of the model.

The third section discusses the dynamics of the model in response to a variety of policy shocks. There are several differences relative to the previous version. The first-year effect on real output of a spending shock is generally smaller, partly because of a heightened reaction of interest rates and exchange rates. The effect on real output also diminishes more quickly, as households adjust their consumption to its long-run desired level more quickly. Over a longer horizon, the consistent-expectations version of the model exhibits cycles that are more damped than was previously the case. The last section summarizes the results and discusses some possible uses of the model.

2. The Structure of Version 2.0 of INTERMOD

This section discusses the structure of the new version of INTERMOD. Both INTERMOD and MULTIMOD disaggregate the industrial countries into the individual G-7 countries plus the aggregate of the 11 smaller industrial countries, for a total of eight blocks. These blocks have, with limited exceptions, an identical structure and common parameters. The most important differences between the country blocks are their external sectors, and in particular the degree of openness, the patterns of trade, and some of the trade elasticities. I first describe the typical block of equations for an industrial region: section 2.1 deals with aggregate demand; section 2.2 discusses aggregate supply; and section 2.3 describes the financial sector. Section 2.4 presents the structure of equations describing the Rest of the World.

2.1 Aggregate Demand

The level of disaggregation on the demand side of the model for the industrial countries is consistent with the familiar national-income accounting identity:

$$GDP = C + I + G + (X - M) . \qquad (2.1)$$

Separate behavioural equations are specified for consumption, investment, and the components of the trade balance, while real government expenditures are an exogenous policy variable.

2.1.1 Consumption and Wealth

Household consumption is a function of household wealth, disposable income, and real interest rates. Disposable income affects consumption in the short run because some households do not have access to capital markets and thus are "income-constrained". Households that are not income-constrained base their consumption on expected lifetime wealth (both human and non-human). The real interest rate affects consumption through its effect on the initial-

period value of wealth and on the desired ratio of consumption to wealth. The proportion of income-constrained households is initially high following a shock to the model, but declines over time as households have increasing access to financial markets. In the current version of the model, households are all assumed to be in income-constrained in the short run and wealth-constrained in the long run.

Income-constrained households base their consumption only on disposable labour income; human and asset wealth are irrelevant. The link between consumption and disposable income is less than one-to-one in the short run, however, because of recognition lags and adjustment costs. The model for wealth-constrained households follows closely Blanchard (1985).[4] Total wealth consists of both holdings of assets (including government bonds), and "human" wealth, defined as the expected value of lifetime after-tax labour income. Households have a constant probability of death in each period; furthermore, they do not value the consumption of future generations. These assumptions jointly imply that the interest rate used by households to discount future labour income is greater than the interest rate paid on government debt and other assets. One important implication is that a proportion of government bonds are regarded as net wealth, because the present value of future taxes associated with government debt is less than the market value of the debt. Thus households are not fully "Ricardian-equivalent" in behaviour, even when they have unrestricted access to capital markets.[5]

Human wealth is based on the expected lifetime value of real disposable labour income. Disposable labour income for a given period is defined as the labour share of total nominal GDP less taxes, deflated by the absorption price:[6]

$$YD = ((1-BETA)*GDP*PGNP - TAX)/P \ , \qquad (2.1.1.1)$$

where:

- YD = real after-tax labour income
- 1-BETA = share of labour in total output
- GDP = real GDP
- PGNP = GNP/GDP deflator
- TAX = nominal taxes
- P = absorption deflator.

---

[4] The relevant details of the model are presented in Appendix A.

[5] This term is due to Barro (1974), and implies that bond-financed changes in taxes will have no effect on aggregate demand.

[6] All taxes are assumed to apply to labour income in this framework. While this is clearly unrealistic, adjusting the value of assets to account for future taxes would require constructing a separate discounted tax variable in the model for assets.

When expectations are model-consistent, human wealth in period t (WH_t) is simply the present discounted value of the model's prediction of future labour income. The discount rate used by current-period households equals the equilibrium real interest rate (RRBAR) plus the rate at which new households enter the economy through births and immigration (BRATE):[7]

$$WH_t = \sum_{i=0}^{\infty} (YD_{t+i}/(1+RRBAR+BRATE)^i) . \qquad (2.1.1.2)$$

Substituting the expression for human wealth in t+1 into (2.1.1.2) allows the infinite sum to be rewritten in terms of current-period disposable income and next-period's human wealth:

$$WH_t = YD_t + WH_{t+1}/(1+RRBAR+BRATE) . \qquad (2.1.1.3)$$

Under adaptive expectations, households base their estimate of human wealth on the expected present value of lifetime disposable income. Rather than using the model's prediction for the level of future output, however, they expect future real GDP to equal, on average, its capacity level. Capacity output is assumed to grow at a constant rate, GROW. The ratio of taxes to GDP is expected to remain at its initial-period level, while the average future ratio of the GDP deflator to the absorption deflator is expected to be unity. Human wealth then equals the capitalised value of the infinite sum in (2.1.1.2), where GDP is evaluated at its capacity level and the discount rate reflects expected growth in capacity output:

$$WH_t = ((1-BETA)*YCAP-TAX/P)/(RRBAR+BRATE-GROW) . \qquad (2.1.1.4)$$

Total wealth under both adaptive and consistent expectations is the sum of asset wealth and the fraction of human wealth that applies to wealth-constrained households (WRAT). Assets are defined as high-powered money, domestic-government bonds, net foreign assets expressed in units of domestic currency, and the domestic capital stock. The real value of wealth in units

---

[7] The equilibrium real interest rate is defined to be the average of the steady-state short- and long-term real interest rates in the model database. This, in turn, has been selected (somewhat arbitrarily) to be the real economic growth rate plus 200 basis points, which gives a common value of RRBAR of 0.045 for all of the industrial countries. The use of the equilibrium real interest rate as opposed to the observed real rate means that human wealth is not affected by changes in interest rates on a shock-minus-control basis. Instead, the interest elasticity of consumption is controlled directly by the interest-rate term in the consumption function.

of consumption goods is the nominal value of these assets divided by the absorption deflator:[8]

$$W = (M+B+NFA/ER)/P + K + WRAT*WH ,$$

where:
- W = total real wealth
- M = high-powered money balances
- B = domestic government bonds
- NFA = net foreign assets in U.S. dollars
- ER = price of domestic currency in U.S. dollars
- K = real net domestic capital stock.

The consumption function has been specified so that the "deep" parameters -- the proportion of households that is wealth- versus income-constrained in the short run and the long run -- can be varied directly in simulation exercises. The proportion of households that is wealth-constrained in the first year of a shock is determined by the parameter WRATS. Preliminary estimation results indicated that WRATS was close to zero, indicating that wealth has little effect on consumption on impact. This parameter was set to zero in further estimation. The variable that drives consumption in the first year of a shock, then, is disposable labour income, as reflected in the parameter c1. The proportion of households that is wealth-constrained in the long run is determined by WRAT. In the current version of the model, WRAT is set to one, principally to facilitate "tying-down" the steady-state properties of the model.[9] The real interest rate is a weighted average of the short-term and long-term real interest rates, where the weight is determined by the parameter c4. Finally, the speed of adjustment from the short run to the long run is controlled by the parameter on the lagged dependent variable, 1-c2. With the imposed values for WRATS of 0 and for WRAT of 1, the consumption function becomes:

$$\ln(C) = c0 + c1*del(\ln(YD)) + c2*\ln(W_{-1}) + c3*((1-c4)*RSR+c4*RLR) + (1-c2)*\ln(C_{-1}) , \qquad (2.1.1.5)$$

where:
- C = real consumption
- RSR = short-term real interest rate
- RLR = long-term real interest rate.

---

[8] The capital stock is already expressed in units of real absorption so no deflation is necessary.

[9] The coding of the consumption and wealth relationships makes it easy to change WRAT for some simulations if desired.

The weight on the short-term versus the long-term interest rate was imposed at 0.20, for reasons described in Appendix A. The key parameters to be estimated, then, are the impact effect of changes in disposable income on consumption (c1), the speed of adjustment (c2), and the interest-sensitivity of consumption (c3). Equation (2.1.1.5) was initially estimated using pooled data for the 8 industrial regions; the expected values of human wealth and the real long-term interest rate were constructed according to the consistent-expectations version of the model. The results for the 1969-87 sample period (with t-statistics in parentheses) were: c1 = 0.33 (4.5), c2 = 0.25 (7.2), and c3 = -0.19 (1.8).

The ordinary-least-squares parameter estimates may not be consistent given the endogeneity of disposable income, expected wealth, and the expected long-term real interest rate. As discussed in Meredith (1989c), an instrumental-variables estimator was used to correct for potential bias in the OLS estimates. The results were unsatisfactory, implying an implausibly low speed of adjustment of consumption to its determinants. Instead, the parameter values are based partly on the OLS results and partly on independent estimates of consumption functions for the industrial countries.[10] The final parameters are: c1 = 0.40, c2 = 0.25, c3 = -0.20. The coefficient on the lagged dependent variable of 0.75 implies a mean adjustment lag of consumption of 3 years; the parameter on the real interest rate means that consumption falls by about 0.8 per cent in response to a sustained rise in the real interest rate of 100 basis points.

As an example of how the consumption-wealth relationship works, consider the response of households to a hypothetical debt-financed cut in taxes. On impact, disposable labour income increases as a result of the tax cut. Human wealth also rises, even though the tax cut must be reversed in the future to prevent the government debt from exploding; human wealth rises because households discount the future increases in taxes at a higher rate than the interest rate paid on government bonds. The effects of higher disposable income and human wealth on consumption mean that the model is not Ricardian-equivalent -- temporary tax cuts initially raise consumer spending. Over time, the tax rate must rise to prevent the government debt from exploding; human wealth and consumption will both fall below their initial levels, reflecting the burden of servicing a higher level of government debt.

2.1.2 Investment

Investment is derived from the demand for the net capital stock, following the approach of Jorgenson (1963). The demand for the capital stock is based on the first-order condition for profit maximization that corresponds to the Cobb-Douglas production function determining potential GDP. The latter is a function of labour, capital, and technology. The labour and technology

---

[10] Campbell and Mankiw (1989), for instance, present evidence on the historical relationship between consumption and disposable income for the G-7 countries.

inputs, however, are not explicit; their growth is embodied in a linear time trend. Thus the only explicit factor of production is capital:

$$\ln(YCAP) = a0 + a1*T + BETA*\ln(K) , \qquad (2.1.2.1)$$

where: YCAP = capacity real GDP
T = linear time trend (1960=1)
BETA = share of capital in output.

Profit maximization implies that, in the long run, the value of the marginal product of capital (in units of producer goods) equals the user cost of capital (in units of domestic absorption):

$$PGNP * (d(Y)/d(K)) = P * UCSTCAP , \qquad (2.1.2.2)$$

where: PGNP = GDP/GNP deflator
UCSTCAP = user cost of capital.

Taking the derivative of output with respect to the capital stock from the production function allows (2.1.2.2) to be rewritten as an expression in the long-run desired capital stock:

$$\ln(K^*) = \ln(BETA) + \ln(Y^*) - \ln((P/PGNP)*UCSTCAP) \qquad (2.1.2.3)$$

where: K^* = long-run desired capital stock
Y^* = expected output level.

Costs of adjustment mean that K is not always at its long-run equilibrium level. Instead, K converges to K^* at a constant proportional rate; in order to ensure that K in fact reaches K^* along the steady-state growth path, there is an additional term that causes K to grow at the same rate as its long-run value:

$$\ln(K/K_{-1}) = \ln(K^*/K^*_{-1}) + \beta*\ln(K^*_{-1}/K_{-1}) , \qquad (2.1.2.4)$$

where: β = the speed of adjustment of the capital stock to its long-run level.

Substituting (2.1.2.3) into (2.1.2.4), and assuming that growth in K* can be approximated by growth in capacity output (YDOT*), gives:

$$\ln(K) = \beta*(\ln(BETA)+\ln(Y^*)-\ln((P/PGNP)*UCSTCAP)) + (1-\beta)*YDOT^* + (1-\beta)*\ln(K(-1)) \; . \qquad (2.1.2.5)$$

Implementing (2.1.2.5) requires constructing a measure of expected output. Under adaptive expectations, expected output is specified as a three-year moving average of current and past levels of real GDP. Under consistent expectations, it is a five-year moving average of the model's prediction of current and future real GDP:

Adaptive: $\ln(GDP^e) = (\ln(GDP_{-2}+\ln(GDP_{-1})+\ln(GDP))/3$

Consistent: $\ln(GDP^e) = (\ln(GDP)+. \; . \; . \; +\ln(GDP_{-4}))/5$

Under both expectations regimes, the user cost of capital is defined conventionally as a function of the expected long-term real interest rate, the depreciation rate of capital, and tax parameters:

$$UCSTCAP = (DELTA/(1-CTRATE) + RLR) * (1-TXCRED-CTRATE*0.2/(RL/100-0.2)) \; , \qquad (2.1.2.6)$$

where:
- DELTA = depreciation rate
- CTRATE = corporate tax rate
- TXCRED = corporate tax credit
- 0.2 = effective depreciation rate for calculating the present value of depreciation allowances.

The term in the nominal long-term interest rate is a proxy for the present value of depreciation allowances.

The principal difference between the equation in the model and (2.1.2.5) is that the user cost enters in <u>levels</u> with a freely-estimated parameter, as opposed to in logarithms with a parameter of minus one. One reason for this is that the user cost for several countries in the historical database has negative values, so that logarithms cannot be used. In addition, the unconstrained estimate of the parameter on the user cost was significantly

less than the theoretical value of minus one.[11] Finally, a dummy variable (DUM74) proxies the effect of the 1973 oil-price shock on the level of capacity output and the share of capital in output. The parameter estimates were obtained by pooled cross-section time-series estimation for the industrial countries over the 1969-87 period. Instrumental variables were used on the user cost, expected GDP, and the growth rate of capacity output. The instruments were: the oil-price dummy; lagged logarithms of GDP and the capital stock; lagged growth in output, money, and prices; the current and lagged share of government expenditures in real GDP. The estimation results are shown in Table 2.1.2.

Table 2.1.2
Capital Stock Equation Estimates

$$\ln(K) = k0 + k1*\ln(GDP^e) + (1-3*k1)*\ln(YDOT) + (1-k1)*\ln(K_{-1}) + k2*(P/PGNP)*UCSTCAP + k3*DUM74$$

	k0	k1	k2	k3
US	0.159	0.222	-0.076	-0.0016
	(23.7)	(20.56)	(3.59)	(0.89)
JA	0.224	"	"	-0.0284
	(22.5)			(4.28)
GR	0.230	"	"	0.0031
	(23.7)			(1.27)
FR	0.206	"	"	0.0132
	(21.1)			(1.70)
UK	0.228	"	"	0.0040
	(22.4)			(1.37)
IT	0.171	"	"	-0.0053
	(21.4)			(0.82)
CA	0.218	"	"	0.0013
	(22.0)			(0.21)
SI	0.230	"	"	0.0120
	(5.55)			(23.3)

[11] An increase of 100 basis points in the user cost lowers the equilibrium capital stock by about 0.3 per cent in the current formulation. In contrast, the Cobb-Douglas production function predicts a decline of about 12 per cent in the long run, given a typical level for the user cost of 0.08 in the model database. One possibility is that the elasticity of substitution between capital and labour is lower than the value of unity implied by the Cobb-Douglas production function; alternatively, the weak relationship may simply be due to mis-measurement of the true user cost faced by firms.

The level of gross investment entering into the demand for real GDP is then simply the one-period change in the net capital stock plus the depreciation on the lagged capital stock:

$$INVEST = K - K_{-1} + DELTA*K_{-1} . \qquad (2.1.2.7)$$

2.1.3 The Government Sector

Real government spending on goods and services is exogenous, while debt-service payments are determined by the outstanding stock of government bonds multiplied by an average interest rate. Net taxes (gross taxes less transfers) are equal to the product of an aggregate tax rate times the level of nominal GDP. There is a fiscal feedback rule such that, over time, the tax rate adjusts to ensure that the ratio of government debt to GDP returns to a pre-determined level. This implies that the present value of taxes is equal to the present value of government spending plus the initial-period stock of outstanding bonds.

Given the level of government spending and taxes, the instantaneous government budget constraint defines the change in net bonds outstanding as total spending minus net tax receipts minus the change in the monetary base (the latter is an exogenous policy instrument):

$$(B-B_{-1}) + (M-M_{-1}) = G*P - TRATE*GDP*PGNP + R*B_{-1} , \qquad (2.1.3.1)$$

where: G*P = nominal government spending
TRATE = average tax rate
R = average of short- and long-term interest rates.

The fiscal feedback rule adjusts the average tax rate in response to both changes in the debt-to-GDP ratio and the gap between the actual debt-to-GDP ratio and its target level. The parameters are such that the debt-to-GDP ratio stabilizes in about four years after an initial shock to the fiscal balance; it then returns to a predetermined target level over a longer time horizon:

$$TRATE-TRATE_{-1} = 0.4*(BRATGAP_{-1}-BRATGAP_{-2}) + 0.015*(BRATGAP_{-1}) , \qquad (2.1.3.2)$$

where: BRATGAP = difference between the actual and target ratio of government debt to GDP.

2.1.4 The Trade Sector

Aggregate trade flows are divided into three components: manufactured goods, oil, and commodities. Each region produces a single manufactured export that is an imperfect substitute for the manufactured exports of other regions. The price of the manufactured export is a function of both the price of aggregate domestic output and output prices in other countries. The share of home-country exports in total world imports depends on the price of home-country exports relative to those of trading partners, and growth in the foreign market for domestic goods relative to total world imports. The single manufactured import of each region represents a composite "bundle" of the manufactured exports of the other regions -- its price is a weighted average of the prices of foreign exports. The volume of imports is a function of total absorption and the price of imports relative to domestic goods.

The price equations for manufactured exports are quasi-reduced forms, reflecting both supply and demand influences. Supply factors are represented by the domestic non-oil GNP deflator; demand factors are reflected in an index of the price of output in foreign markets. The price of output in foreign markets for each region is measured by an average of: (i) the direct weight of each trading partner in domestic exports, and (ii) a measure of "third-country" competitiveness effects (the latter is described in more detail below).[12] These weights are then applied to the non-oil GNP deflators of foreign countries. Export prices are homogeneous of degree one in the sum of domestic and foreign prices in both the short run and the long run; time trends are included in the equation to capture different rates of technological change in export industries relative to the economy as a whole. This gives the following specification for the export-price equation:

$$\ln(PXM) = PXM0 + PXM1*del(\ln(PGNPNO)) + PXM2*del(\ln(PFM)) + PXM2*\ln(PGNPNO_{-1}) + PXM3*\ln(PFM_{-1}) + (1-PXM2-PXM3)*\ln(PXM_{-1}) + PXM4*T, \qquad (2.1.4.1)$$

where: PXM = price of the home country's manufactured export
PFM = price in foreign markets.

Equation (2.1.4.1) is estimated using a pooled cross-section time-series estimator for the 8 industrial regions over the 1969-86 period. An additional constraint is imposed that the long-run weight on domestic versus foreign

---

[12] Composite indices for each region of prices and activity in foreign markets are based on trade weights derived from the matrix of multilateral trade flows for 1980. This matrix implies export and import share matrices for the base period, which are in turn used to aggregate foreign variables into indices of foreign prices and activity for the home country.

prices be the same across countries, as this parameter was poorly-defined in initial estimation.[13] The results are summarized in Table 2.1.4.1 in terms of the short- and long-run coefficients on domestic and foreign prices.

Table 2.1.4.1
Weights on Domestic and Foreign Prices in Export Prices

	Short Run		Long Run	
	Domestic	Foreign	Domestic	Foreign
U.S.	1.00	0.00	0.60	0.40
Japan	0.50	0.50	"	"
Germany	0.76	0.24	"	"
France	0.52	0.48	"	"
U.K.	0.71	0.29	"	"
Italy	0.67	0.33	"	"
Canada	0.75	0.25	"	"
Small Ind.	1.00	0.00	"	"

The short-run weight on domestic prices ranges from a low of 0.50 for Japan to a high of 1.00 for the U.S. and the Small Industrial region. The long-run common value of the weight on domestic prices is estimated to be 0.60. The coefficients on the time trends (not shown) are all negative, ranging from -0.001 for Germany to -0.021 for Italy, indicating that technological progress has been faster in export industries that in the aggregate economies of these countries.

The import price of each country is constructed as a quasi-identity based on the export prices of trading partners and the share of each trading partner in domestic imports in the base year (1980). Using these weights and converting all domestic prices into U.S. dollars adjusted such that prices equal unity in 1980, the manufactured import price of country i is:

$$PIM_i * ER_i/ER80_i = \sum_{j=1}^{9} (S_{ji} * PXM_j * ER_j/ER80_j) , \qquad (2.1.4.2)$$

where: PIM_i = manufactured import price of country i (1980=1)
S_{ji} = share of country j in i's imports in 1980.

The import volume equation for manufactures is interpreted as a demand curve. Imports depend on total domestic spending (i.e. domestic absorption) and the ratio of the import price to the domestic non-oil GNP deflator:

---

[13] The long-run weight on domestic prices is equal to PXM2/(PXM2+PXM3). The system of equations was fitted given the (non-linear) constraint that this weight be the same across countries using grid-search methods as described in Meredith (1989a).

$$\ln(IM) = IM0 + IM1*\ln(A) + (1-IM1)*\ln(A_{-1})$$

$$+ IM2*\ln(PIM/PGNPNO) + IM3*\ln(PIM_{-1}/PGNPNO_{-1}) + IM4*T \; . \qquad (2.1.4.3)$$

where: IM = manufactured imports of home country
A = domestic absorption.

While the long-run coefficient on domestic absorption is constrained to unity, imports are a "buffer" in the short run for most countries in that import volumes can "overshoot" changes in absorption on impact. This reflects the existence of bottlenecks that may restrict the supply of domestic output in response to a change in spending; the gap is filled by increased imports. The overshooting is reversed in the second year; imports are homogeneous of degree one in absorption in the long run. The relative price term affects the ratio of imports to absorption both contemporaneously and with a lag of one year. Finally, a time trend is added to the equation to capture "opening-up" effects associated with declining tariff barriers and other secular factors that have raised imports relative to total spending.

The equations for the 8 industrial regions are estimated by OLS over the 1969-86 period.[14] The estimated parameters on absorption and relative prices are:

Table 2.1.4.2
Import Volume Parameters

	IM1	IM2	IM3	IM2+IM3	IM4
U.S.	1.47	-0.18	-0.73	-0.91	0.039
Japan	1.00	-0.10	-0.64	-0.74	0.026
Germany	0.54	-0.25	-0.25	-0.50	0.029
France	1.16	-0.20	-0.78	-0.98	0.020
U.K.	0.77	-0.50	-0.00	-0.50	0.020
Italy	0.99	-0.20	-0.82	-1.02	0.000
Canada	1.64	-0.33	-0.20	-0.53	0.031
Small Ind. . .	1.40	-0.36	-0.43	-0.79	0.022

The values for IM1 indicate that imports buffer shocks to absorption in the U.S., France, Canada, and the Small Industrial countries. Conversely, imports respond by proportionately less than absorption in Germany and the U.K. on impact. The short-run relative price elasticities range from -0.10 for Japan to -0.50 for the U.K. The long-run elasticities range from -0.50 for the U.K. and Germany to -1.02 for Italy. The coefficients on the time trends are all positive, reflecting the secular upward trend in the share of imports in absorption in these countries over the estimation period.

[14] Imports of the developing countries are determined by the supply of foreign capital as opposed to an explicit import demand function.

The export volume equations are specified to respect the constraint that the nominal value of world exports equal the value of world imports in simulation exercises. To this end, we define the dependent variable in the equation for export volumes as the nominal export share of total world imports. Cross-equation constraints are then imposed such that the shares add to unity. This keeps the ratio of world export values to import values constant in simulation exercises without resorting to a residual-allocation procedure.[15] Export volumes are then obtained from the share equations by dividing export values by the export deflator.

The share of home-country exports in world imports is driven by two variables. The first is the imports of its trading partners, holding the share of the home country in each of its export markets constant. This is embodied in a "foreign markets" variable for each country that is a weighted sum of the imports of the home-country's trading partners; the weights reflect the base-period share of home-country exports in each trading partner's imports. The second factor is the share of the home country in the imports of its trading partners, holding the level of their imports unchanged. These market shares reflect the competitiveness of the home country relative to other exporters, or "third-country" competitiveness effects. They depend on the export price of the home country relative to a weighted average of the export prices of its trading partners. The typical export-share equation then is:

$$(XM*PXM*ER)/MTOT = X0 + FM/MTOT + X1*RCI + X2*RCI_{-1} + X3*T , \quad (2.1.4.4)$$

where:
- XM = volume of manufactured exports
- MTOT = value of world manufactured imports (US$)
- FM = "foreign market" variable, defined a weighted sum of import values of trading partners (US$)
- RCI = real competitiveness index, defined as a weighted sum of the logs of foreign export prices relative to domestic export prices (1980=0).

To satisfy the constraint that the shares sum to unity, the data are constructed such that the foreign market shares (FM/MTOT) add to one across regions, while the real competitiveness indices sum to zero. Combined with the cross-equation parameter constraints that X1 and X2 be the same for all

---

[15] The adding-up constraint in volume terms is also satisfied in the base period (i.e. 1980). Real trade discrepancies on a shock-minus-control basis can be generated as we move away from the base period, but simulations have shown that they are generally small.

regions and that the parameters on the time trend have a zero sum, this ensures that the export shares add to one.[16]

Equation (2.1.4.4) is jointly estimated over the 1969-86 sample period for the 9 regions in the model. The estimated parameters for RCI are -0.63 on the contemporaneous value and +0.46 on the lagged value. The estimated parameter on contemporaneous RCI implies an average short-run price elasticity of -0.37 for the nine regions. The sum of the parameters on current and lagged RCI of -0.17 implies a long-run price elasticity that averages -0.82 for the nine regions.[17]

Trade in crude oil (produced by all regions) and in commodities (produced by the developing countries only) differs from manufactured goods in that all regions face a single world price in U.S. dollars. The consistency of supply and demand in oil and commodity markets is achieved by different mechanisms. In the case of oil, the Rest of the World acts as the residual world supplier at an exogenous real world oil price; for commodities, the real price is endogenous and determined by the intersection of the supply curve of the developing countries and the demand curve of the industrial countries.

Each of the industrial regions produces, consumes, imports, and exports crude oil. The only behavioural relationship in the oil sector of each country is a consumption equation. Oil consumption is a function of real GDP and the price of oil relative to that of aggregate output:

$$\begin{aligned} \ln(COIL) = {} & COIL0 + COIL1*\ln(GDP) + COIL2*\ln(GDP_{-1}) \\ & + COIL3*\ln(POIL/(ER*PGNP)) + COIL4*\ln(POIL_{-1}/(ER_{-1}*PGNP_{-1})) \\ & + (1-COIL1-COIL2)*\ln(COIL_{-1}) , \end{aligned} \qquad (2.1.4.5)$$

where: COIL = real oil consumption
POIL = nominal world oil price in U.S. dollars.

Domestic production and exports are assumed to be exogenous; imports are the residual between net domestic supply and consumption. The net oil exports of the ROW region then equal the sum of the excess demands of the industrial countries.

---

[16] The sum of the constant terms is not equal to zero in estimation because there is a world trade residual between the value of imports and exports in the historical data -- the sum of the estimated constant terms equals the average difference between exports and imports over the estimation period.

[17] These partial price elasticities are based on shocks to relative export prices that do not change the foreign market shares or the total value of world imports.

Commodities are produced by the developing countries and consumed by the industrial countries. As the latter have no domestic production, consumption is identical to imports (ICOM), which are in turn a function of GDP and the world price of commodities (PCOM) relative to the price of domestic output:

$$\ln(ICOM) = IC0 + IC1*del(\ln(GDP)) + IC2*\ln(PCOM/(ER*PGNP)) + IC3*\ln(GDP_{-1}). \quad (2.1.4.6)$$

The parameters in this equation are common to the industrial countries. Pooled estimation over the 1969-86 sample period yields a short-run income elasticity of 1.04, somewhat higher than the long-run elasticity of 0.69. The price elasticity is constant in the short and long run at -0.41. The supply of commodities is completely price-inelastic in the short run, and the world price adjusts such that the import demands of the industrial countries equal the exogenous supply. Over time, an increase in world demand for commodities raises prices and increases investment in commodity production in the developing countries. This shifts out the short-run supply curve, lowering prices and raising the volume of commodity exports.

The current account balance equals the trade balance plus the net inflow of investment income on the estimated value of foreign assets. The latter are assumed to be denominated in U.S. dollars and pay a rate of return equal to the average of U.S. short- and long-term interest rates. The capital outflow in the balance of payments is identically equal to the current account surplus, thus the level of net foreign assets is determined by the cumulated current account balance expressed in U.S. dollars.

2.2 Aggregate Supply

Aggregate supply is summarized by a quasi-reduced-form price equation. Growth in the domestic absorption deflator responds to deviations of output from potential, lagged and expected inflation, and changes in the relative price of imports:

$$PI = a0*(PI_{-1}) + (1-a0)*(PI^{e}) + a1*0.5*(CU+CU_{-1} + a3*s^{im}*(PI^{im}-PI_{-1}) + (a4-a3)*s^{im}*(PI^{im}_{-1}-PI_{-2}) , \quad (2.2.1)$$

where:
- PI = change in the log of the absorption deflator
- CU = capacity utilization rate
- s^{im} = share of imports in absorption
- PI^{im} = change in the log of the import deflator.

This equation can be derived from an overlapping-contracts model of wage behaviour as described by Taylor (1979). The sum of the coefficients on lagged and expected inflation is unity, thus the Phillips curve is vertical in the long run and output must return to its potential level in the absence of continuing increases in the rate of inflation. The relative weight on lagged and future inflation is a measure of the average contract length -- in INTERMOD this varies across countries, with a typical weight of about 0.5 on both lagged and future inflation. The capacity-utilization term captures the effect on wage growth of excess demand in labour markets, with a 1 per cent output-market gap corresponding to a 0.158 per cent rise in the rate of inflation holding past and expected-future rates of inflation constant. The role of import prices in the short run, as reflected in a3, varies across countries, ranging from a low of 0.45 for Germany to 1.33 for Japan.[18] The long-run pass-through of import prices is controlled by a4; this parameter is constrained to a common value of 0.77 for the industrial countries.

The key difference between the adaptive- and consistent-expectations versions of the model is the specification of expected inflation: under adaptive expectations, PI^e adjusts gradually to observed innovations in the rate of inflation, whereas under consistent expectations it is the model outcome for the next-period inflation rate:

Adaptive: $PI^e = 0.3*PI + 0.7*PI^e_{-1}$.

Consistent: $PI^e = PI_{+1}$.

2.3 Financial Markets and Monetary Policy

The financial sector in the model consists of three equations: (i) a money-market equilibrium condition that determines the short-term nominal interest rate, (ii) a term-structure relationship for the long-term nominal and real interest rates, and (iii) an international interest-rate-parity condition that determines the exchange rate.

The demand for high-powered money balances is a function of the contemporaneous levels of real GDP and the short-term interest rate. The equation is estimated over the 1966-86 period using pooled data for the G-7 countries:

$$\ln(M/P) = a0 + \ln(GDP) - \underset{(4.68)}{0.022}*RS \; . \qquad (2.3.1)$$

---

[18] A pass-through of greater than one reflects the response of domestic producers to the rise in import prices.

The coefficient on real GNP is constrained to unity. The interest semi-elasticity of -0.022 implies that a 1 per cent increase in the money supply, holding real output and prices constant, is associated with a 40 basis point decline in the short-term interest rate. The money market is assumed to clear at all points in time: short-term interest rates adjust such that the exogenous stock of real high-powered money balances equals its desired level.

The long-term interest rate is related to the short-term rate by a term-structure relationship under consistent expectations. Under adaptive expectations, the long-term rate (RL) adjusts gradually to observed innovations in the short-term rate:

$$\text{Consistent:} \quad RL_t = \sum_{i=0}^{9} (RS_{t+i})/10 \qquad (2.3.2)$$

$$\text{Adaptive:} \quad RL_t = 0.33*RS_t + 0.67*RL_{t-1} \qquad (2.3.3)$$

Equation (2.3.2) is a linear approximation to the exact formula for a pure discount bond with a ten-year maturity; the latter was chosen to correspond to the approximate duration of the actual bond data in the model database.[19] The adjustment speed in (2.3.3) is based on pooled estimation for the industrial countries. In either case, long-term interest rates move one-for-one with short-term interest rates in the long run.

The long-term <u>real</u> interest rate in the consistent-expectations version of the model is determined by an equation similar to (2.3.2). The short-term nominal rate is replaced by the short-term real rate, defined as the nominal rate less an average of current and next-period inflation rates. Under adaptive expectations, the long-term real interest rate is the nominal rate less a measure of inflation expectations that responds gradually to observed rates of inflation.

The exchange-rate equation is based on the arbitrage condition assuming perfect international capital mobility. The current value of the exchange rate adjusts relative to its expected future value to equalize the expected holding-period yields on domestic and U.S. short-term assets:

$$(ER/ERE - 1) = US_RS - RS \,, \qquad (2.3.4)$$

where: ER/ERE - 1 = expected appreciation of the domestic currency
US_RS = U.S. short-term interest rate.

---

[19] Another consideration was that ten years is the typical cyclical period of the model. Thus the ten-year horizon for the long-bond rate captures a full cycle of short-term interest rates.

Under consistent expectations, ERE is the one-period-ahead value of the exchange rate as predicted by the model, whereas under adaptive expectations the expected exchange rate evolves gradually in response to observed exchange-rate movements.

2.4 The Rest of the World

The Rest of the World is divided into two regions: high-income oil exporters and the developing countries. The high-income oil exporters function primarily as the residual supplier of oil to the industrial countries at an exogenous world oil price. The developing countries supply both manufactured goods and commodities to the industrialized countries. They differ from the industrial countries in that they face a financing constraint on their balance of payments: the accumulation of foreign debt is limited by expected growth in debt-servicing capacity.

2.4.1. High-Income Oil Exporters

Output of the manufactured good by the high-income oil exporting countries is exogenous. Oil exports and thus total output are determined by the excess demand of the industrial countries, which is allocated between the high-income oil exporters and the developing countries based on historical market shares. Changes in world oil demand affect domestic income and absorption. Total absorption and relative prices determine the demand by the oil exporters for the manufactured exports of the industrial countries and for the commodity exports of the developing countries.

2.4.2. Developing Countries

The developing countries produce four goods: a manufactured good, oil, a primary commodity, and a non-traded good. Oil exports are determined as a fixed share of the excess demand of the industrial countries. Commodity exports are a function of the capital stock in the commodity-producing sector. The world price of commodities is determined in the short run by the intersection of the vertical supply curve and the downward-sloping demand curve of the industrialized countries for commodity imports. Over time, the share of new investment allocated to the commodity-producing sector adjusts based on the price of commodity exports relative to manufactured goods. Potential output of manufactured exports is also determined by the capital stock; investment depends on the relative price of manufactures versus commodities.

On the demand side, consumption in the developing countries is determined by disposable income and the flow of financing from the developed countries. The latter depends on the expected ratio of debt-interest payments to exports (representing potential future debt-servicing problems) as proxied by: expected growth in exports, growth in the existing debt ratio, and real interest rates. Imports are determined residually as the sum of net capital inflows and export revenues. The level of aggregate investment in the

manufacturing and commodity-producing industries is the sum of domestic savings (the excess of output over total consumption) and foreign savings (the excess of imports over exports).

3. Model Responses to Policy Shocks

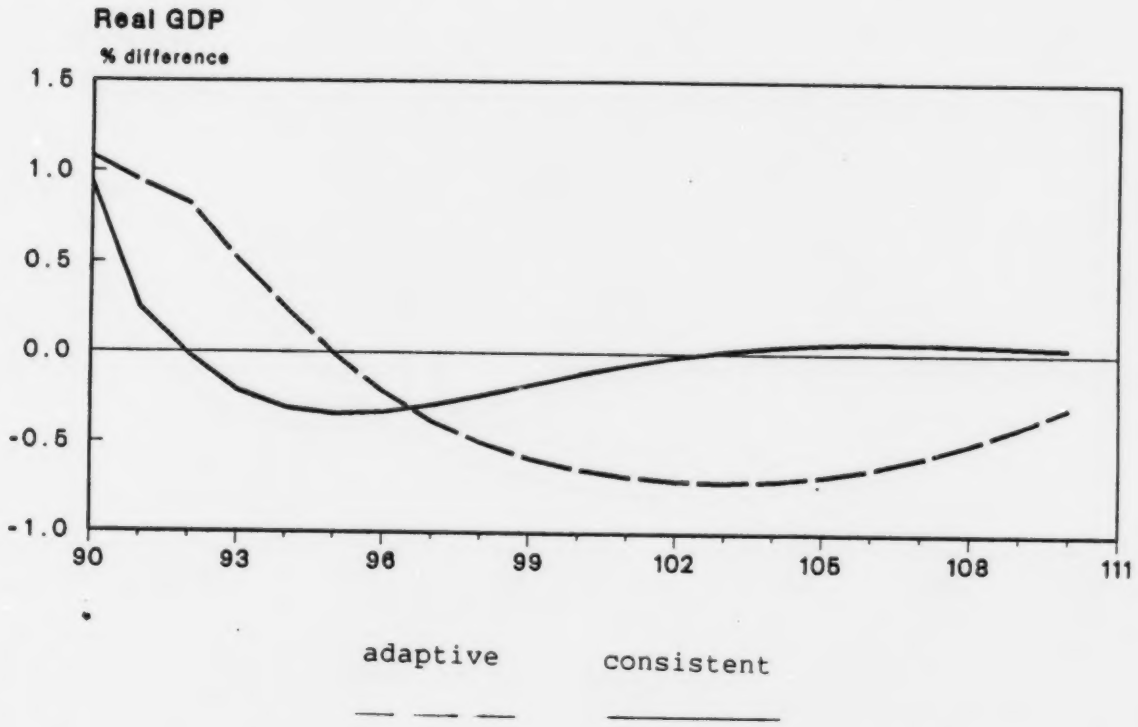
This section presents the results of fiscal and monetary shocks to the model. All of the shocks start in 1990 (labelled "90" in the associated output) and have been simulated to 2020. The forward-looking simulations are performed using the extended-path algorithm of Fair and Taylor (1983) using version 13.0 of TROLL. The last years of the simulations under model-consistent expectations are affected by exogenous end-point conditions, and are ignored in analyzing the model's properties. Under consistent expectations, the shocks are interpreted as surprises to economic agents in the initial period, with agents then having perfect foresight as to the future effects of the initial-period shock. The control solution is based on actual historical data for 1988, followed by gradual convergence of real growth and inflation to 2.5 per cent and 3.5 per cent respectively by the mid-1990's for all regions. The government deficit and the current account balance converge to values that stabilize ratios of outstanding debt to GDP by 2000.

3.1 Fiscal Shocks

This section describes the effects of a permanent rise in real government spending on goods and services of 1 per cent of baseline GDP. Higher government spending is deficit-financed in the first year of the shock; taxes then rise over time to satisfy the government's intertemporal budget constraint.

The results for the U.S. using both the adaptive- and consistent-expectations versions of the model are shown in Charts 1(a) and 1(b). (Detailed simulations results for all of the industrial countries are given in Appendix B.) The first-year multiplier for the U.S. is 0.94 under consistent expectations versus 1.08 under adaptive expectations. The difference is primarily due to the smaller appreciation of the exchange rate under adaptive expectations, which reduces the "crowding out" of the trade sector. The exchange rate rises by more under consistent expectations because there must be an expected future exchange rate depreciation sufficient to offset the prolonged increase in domestic short-term interest rates following the fiscal shock. This effect continues over the medium term, and is reinforced by a smaller decline in consumption under adaptive expectations. Consumption falls by less because households are not fully forward-looking under adaptive expectations, in the sense that they do not fully incorporate the increase in taxes necessary to finance higher government spending into their wealth calculation. Thus output remains above control for 5 years under adaptive expectations versus 2 years under consistent expectations. This is followed by an extended period over which output is below control under adaptive expectations. Under consistent expectations, output fluctuations are more damped; GDP returns close to its original level after the first 10 years of the shock.

Chart 1(a)
U.S. Government Spending Shock
(shock minus control)



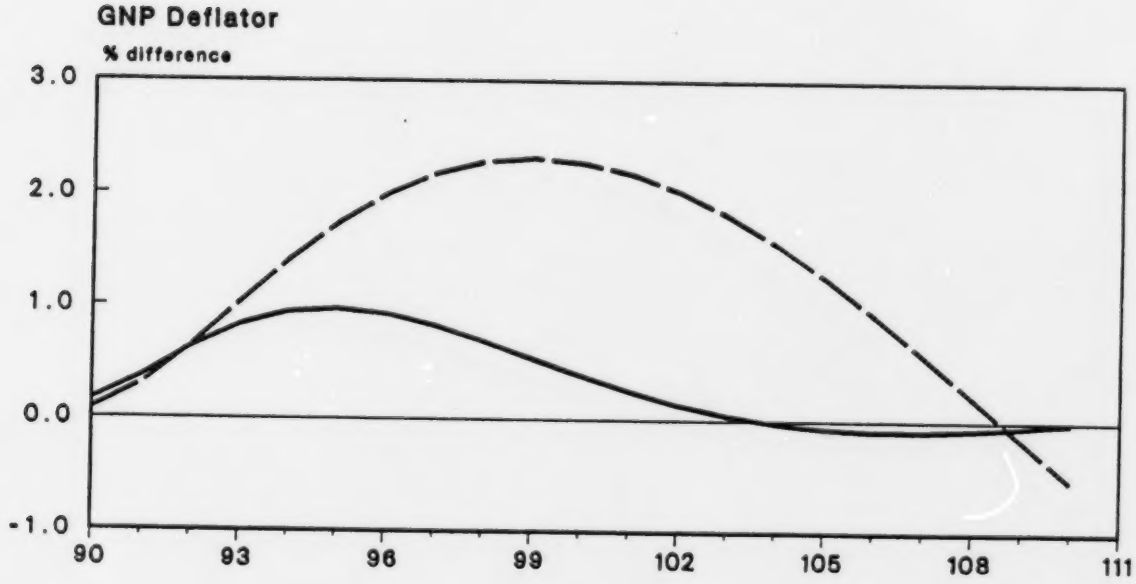
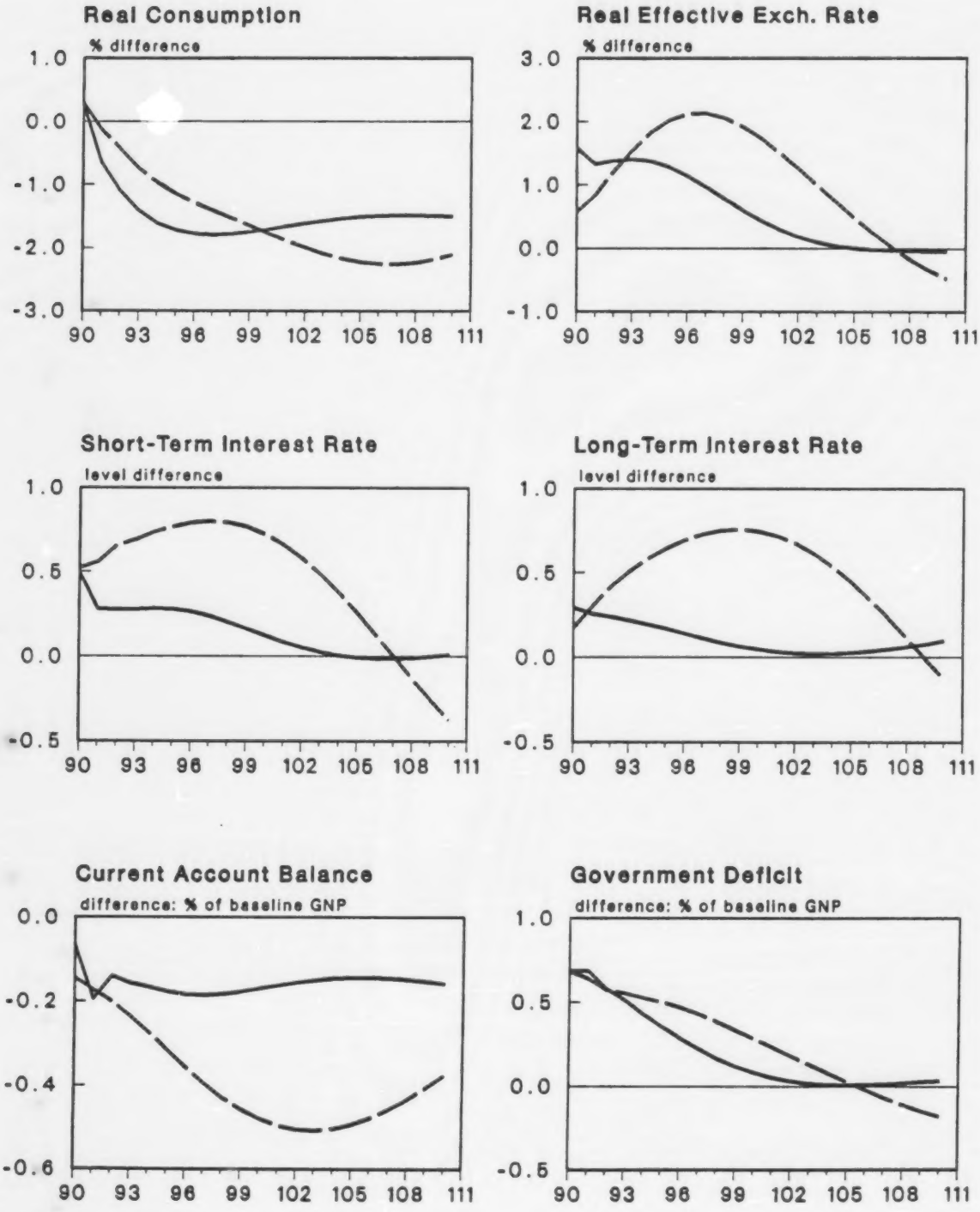


Chart 1(b)
U.S. Government Spending Shock
(shock minus control)



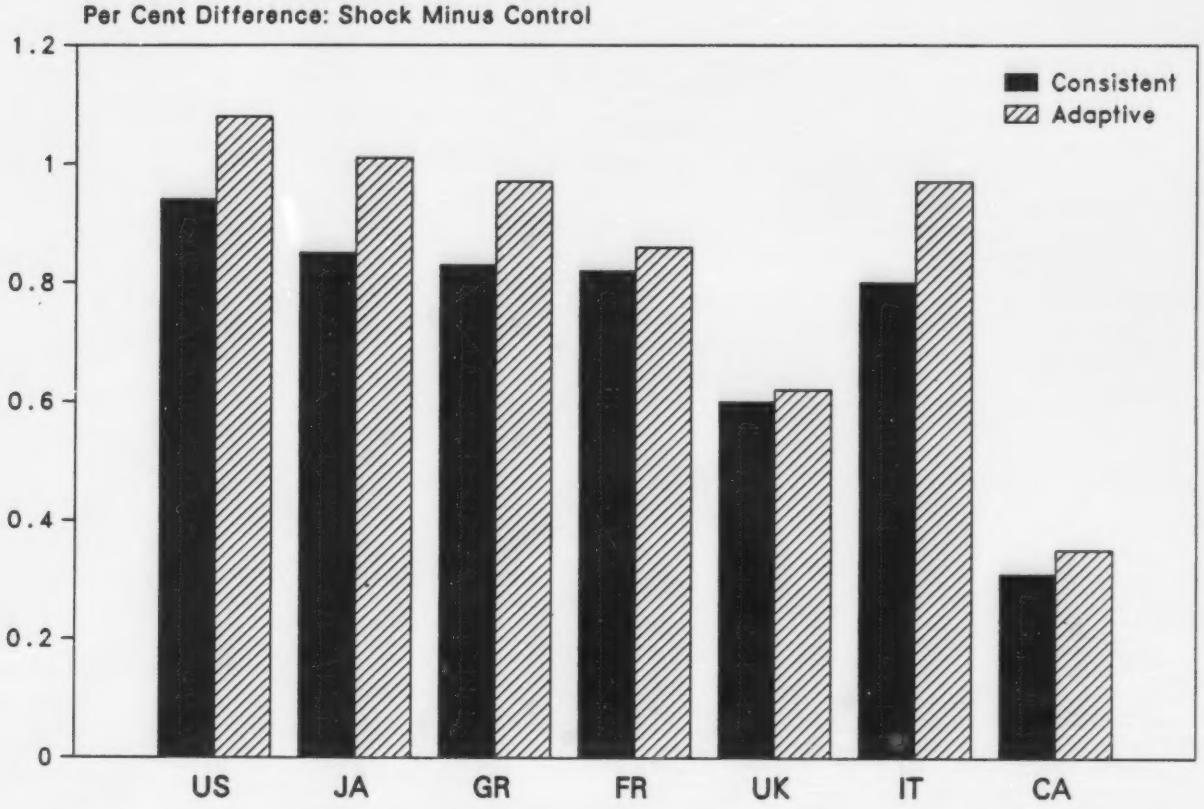
The initial effect on the GNP deflator indicates that the short-run supply curve is slightly steeper under consistent expectations -- prices rise by more even though the output change is smaller. Prices accelerate more quickly in the later years of the shock under adaptive expectations, however, reflecting the higher level of real output: the price level peaks at over 2 per cent above control under adaptive expectations versus under 1 per cent under consistent expectations. The larger increase in prices under adaptive expectations results in a much greater rise in short- and long-term interest rates over most of the simulation period, given an unchanged money supply. The deterioration in the current account is more pronounced in the later years of the shock under adaptive expectations; in contrast, the fiscal balance returns gradually to control in both simulations, reflecting the operation of the tax-reaction function in response to higher levels of government debt.

Output in the other G-7 countries rises given the increase in U.S. government spending (the details are shown in Tables B1 and B11 in the Appendix). This occurs because the stimulus to the trade sectors of these countries more than offsets the negative effect on domestic demand of higher world interest rates. The country most affected is Canada, where real GDP rises by 0.56 per cent under adaptive expectations and by 0.50 per cent under consistent expectations in the first year of the shock. The effect on the GDP of the rest of the G-7 is considerably smaller, ranging from 0.1-0.2 per cent. The current account balance of all of the (non-U.S.) G-7 countries improves in response to the U.S. fiscal expansion.

The first-year responses of output in each of the other G-7 countries to a domestic government spending shock are shown in Chart 2. Two features of these results are notable. The first is that the impact multiplier is always higher (although not dramatically so) under adaptive expectations. This is because of the lower exchange-rate effect, as noted above. The second feature is that the impact multiplier depends on both the size of the economy, and on the importance of the trade sector in each economy. This is reasonable a priori: larger countries create greater spill-over effects abroad that feed back on domestic activity, while a larger trade sector increases the impact of the crowding out of the external sector on total GDP. The exception is Italy, where imports are less responsive to absorption and relative prices than in most of the other countries in the short run.

When expectations are model-consistent, the response of output to a government spending shock depends on two factors in addition to the size of the shock: (i) whether the shock is anticipated, and (ii) how long the shock lasts into the future. If a spending shock is anticipated in advance, the exchange rate and the long-term interest rate will jump prior to the shock itself, reflecting the expected effect on the short-term interest rate of the rise in government spending. This reduces the effect on real output of the rise in spending when it actually occurs. Concerning the duration of the shock, the more long-lived is the rise in government spending, the greater will be the decline in human wealth when the spending increase is announced; consumption will fall by more and the effect on output will be reduced. These effects are shown in Table 3.1, which compares the change in U.S. GDP for three different spending shocks (detailed results are presented in Appendix

Chart 2: First-Year Effect on Real GDP of a Shock to Government Spending



B). The simulation for the permanent, anticipated shock is started in 1990 and the shock itself occurs in 1991. There is a slight initial decline in output in anticipation of the rise in government spending; the impact on output when the shock actually occurs is smaller than in the unanticipated case. When the spending shock is temporary, output increases by slightly more than when it is permanent. The difference is small because wealth affects consumption with a lag; the decline in human wealth when the shock is permanent has no effect in the initial period.

Table 3.1
Effects on U.S. GDP of Three Different Government Spending Shocks
(per cent difference — shock minus control)

Year	Permanent, Unanticipated	Permanent, Anticipated	Temporary, Unanticipated
1	0.94	-0.01	0.99
2	0.25	0.57	-0.26
3	-0.02	0.22	-0.18
4	-0.22	-0.04	-0.15

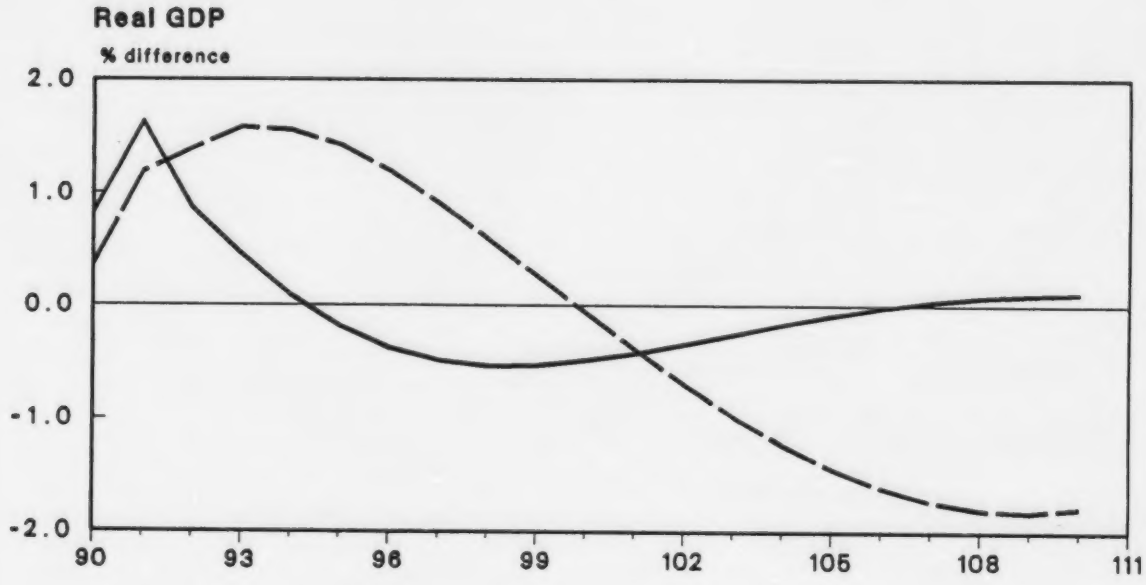
3.2 Monetary Shocks

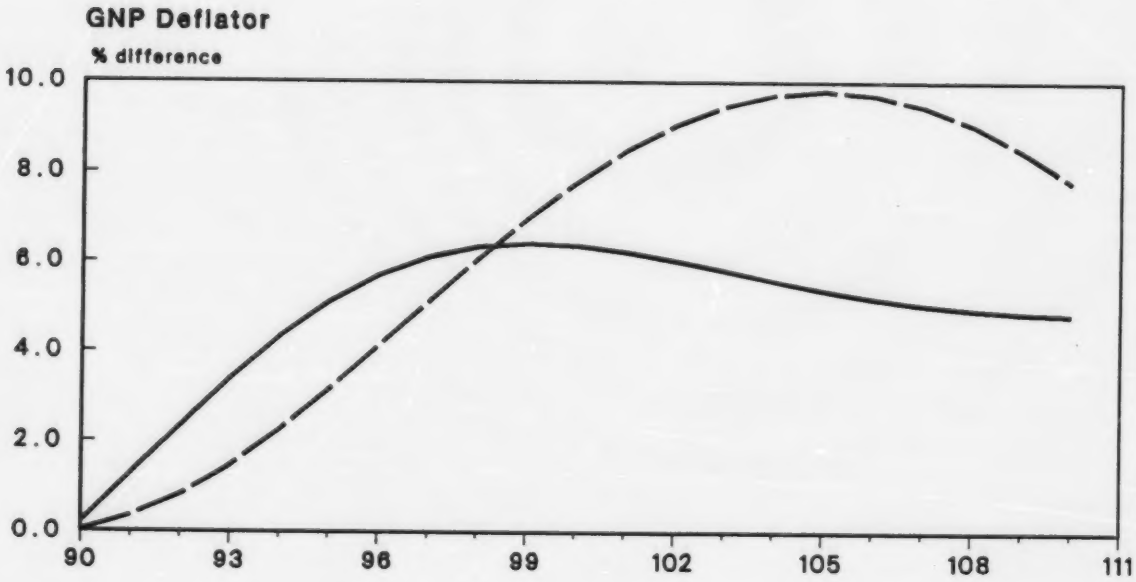
The effects of a 5 per cent increase in the U.S. money supply are shown in Charts 3(a) and 3(b). The money shock has a higher first-year effect on real output under consistent expectations, in contrast to the government spending shock. This is because the exchange rate depreciation is more than twice as large under consistent expectations, reflecting the exchange-rate "overshooting" phenomenon as described by Dornbusch (1976). A permanent increase in the money supply lowers both the equilibrium value of the exchange rate and domestic interest rates when goods prices are sticky. The decline in domestic interest rates relative to the world rate must be offset by an expected exchange-rate appreciation given the assumption of perfect international capital mobility. Under rational expectations, agents expect the exchange rate to appreciate only if it initially overshoots its equilibrium level. The effect of the additional 2 per cent depreciation in the real exchange rate on the trade balance accounts for the higher output in the initial period; consumption rises by about the same amount under both expectations regimes.[20]

The stimulus to output is shorter-lived under consistent expectations, as the price level adjusts more rapidly to its new equilibrium level. After six years, the price level has risen by close to 5 per cent and output is slightly

[20] Consistent expectations do not increase the responsiveness of prices to output movements or reduce the role of lagged inflation in the price equation. Both of these are a function of the "overlapping-contracts" paradigm that generates price stickiness in the model. If the average contract length in the model were a function of the expectations regime, then the output response under consistent expectations could be lower than shown here.

Chart 3(a)
U.S. Money Supply Shock
(shock minus control)

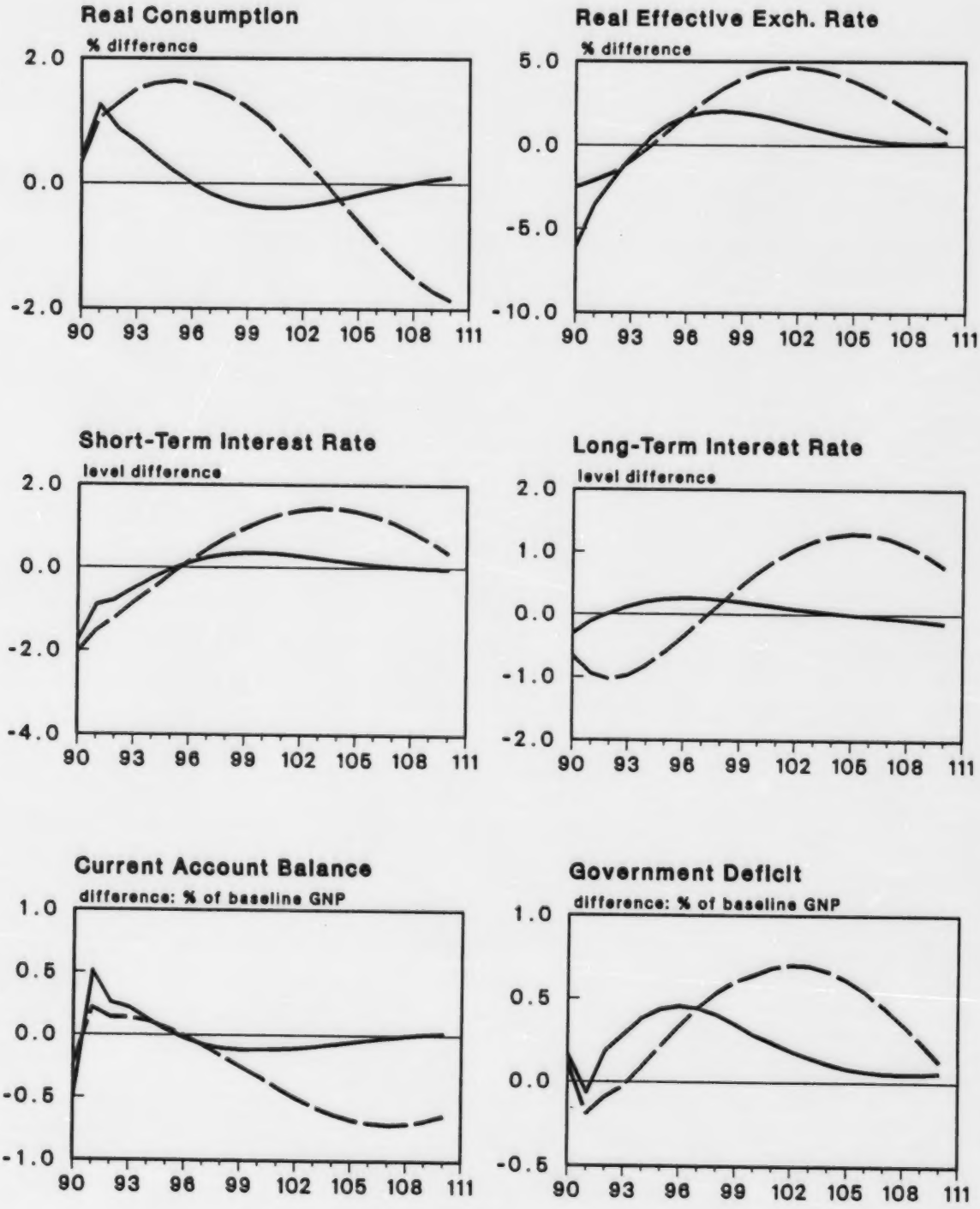




consistent ——————

adaptive — — —

Chart 3(b)
U.S. Money Supply Shock
(shock minus control)



3.2 Monetary Shocks

The effects of a 5 per cent increase in the U.S. money supply are shown in Charts 3(a) and 3(b). The money shock has a higher first-year effect on real output under consistent expectations, in contrast to the government spending shock. This is because the exchange rate depreciation is more than twice as large under consistent expectations, reflecting the exchange-rate "overshooting" phenomenon as described by Dornbusch (1976). A permanent increase in the money supply lowers both the equilibrium value of the exchange rate and domestic interest rates when goods prices are sticky. The decline in domestic interest rates relative to the world rate must be offset by an expected exchange-rate appreciation given the assumption of perfect international capital mobility. Under rational expectations, agents expect the exchange rate to appreciate only if it initially overshoots its equilibrium level. The effect of the additional 2 per cent depreciation in the real exchange rate on the trade balance accounts for the higher output in the initial period; consumption rises by about the same amount under both expectations regimes.[20]

The stimulus to output is shorter-lived under consistent expectations, as the price level adjusts more rapidly to its new equilibrium level. After six years, the price level has risen by close to 5 per cent and output is slightly below control. Under adaptive expectations, output rises for the first few years of the shock, reflecting the slower adjustment of the price level. Output remains above control for the first 10 years of the simulation, and the price level substantially overshoots its new equilibrium. As in the case of the government spending shock, the consistent-expectations version of the model exhibits more damped cyclical behaviour in response to the initial shock.

The spillover effects of the U.S. monetary stimulus on the other G-7 countries are all negative in the first year, with the decline in real GDP ranging from 0.08 per cent in Japan to 0.63 per cent in Canada under consistent expectations. Foreign output declines because the effect of the exchange-rate appreciation on the real trade balance more than offsets that of lower world interest rates on domestic demand. Thus foreign GDP declines by more under consistent expectations, as the initial exchange-rate jump is larger. Foreign price levels typically fall on impact and are little changed over the medium term given the U.S. monetary shock, consistent with flexible exchange rates and unchanged money supplies in the other G-7 economies.

4. Summary

Version 2.0 of INTERMOD incorporates several changes relative to version 1.0; consistent expectations have been introduced into the consumption and investment relationships; inflation expectations are fully endogenous; the monetary linkages are more transparent; and the trade sector has been simplified. The effect of these changes has been most significant in terms of the properties of the consistent-expectations version of the model, which now exhibits a more damped cyclical pattern in response to shocks to aggregate demand. These changes -- especially those to consumption and wealth -- also allow the steady-state properties of the model to be more easily identified.

---

[20] Consistent expectations do not increase the responsiveness of prices to output movements or reduce the role of lagged inflation in the price equation. Both of these are a function of the "overlapping-contracts" paradigm that generates price stickiness in the model. If the average contract length in the model were a function of the expectations regime, then the output response under consistent expectations could be lower than shown here.

- The effect of different monetary policy regimes on output and price variability given shocks to the behavioural relationships in the model.

This is only a partial list of applications for which the model is suitable. Its transparent theoretical structure, well-developed international linkages, and explicit expectations-formation mechanisms make it a useful tool for the medium- and long-run analysis of a variety of macroeconomic issues. The list of possible applications may also be expanded by further model development, such as the introduction of EMS-type links between the European currencies.

References

Barro, R.J. (1974), "Are Government Bonds Net Wealth?", Journal of Political Economy, vol. 82, pp. 569-581.

Blanchard, O. (1985), "Debts, Deficits, and Finite Horizons", Journal of Political Economy, pp. 223-247.

Campbell, J. and G. Mankiw (1989), "Debts, Deficits, and Finite Horizons", Journal of Political Economy, pp. 223-247.

Dornbush, R. (1976), "Expectations and Exchange Rate Dynamics", Journal of Political Economy, December, pp. 1161-1176.

Fair, R. and J. Taylor (1983), "Estimation and Solution of Nonlinear Rational Expectations Models", Econometrica, vol. 51, pp. 1169-1185.

Frankel, J. (1988), "Ambiguous Policy Multipliers in Theory and Empirical Models", Chapter 2 in Empirical Macroeconomics for Interdependent Economies, Bryant et al eds., Brookings Institution, Washington, D.C.

Jorgenson, D. (1963), "Capital Theory and Investment Behaviour", American Economic Review, vol. 53, pp. 247-259.

Helliwell, J., G. Meredith, Y. Durand, and P. Bagnoli (1988), "INTERMOD 1.1: A G-7 Version of the IMF's MULTIMOD", Department of Finance Working Paper No. 88-7, November.

Masson, P., S. Symansky, R. Haas, and M. Dooley (1988), "MULTIMOD: A Multi-Region Econometric Model", I.M.F. World Economic Outlook Occasional Studies, June.

Meredith, G. (1989a), "The New Trade Sector in INTERMOD", Economic Studies and Policy Analysis Division, Department of Finance, March.

Meredith, G. (1989b), "Expectations, Policy Shocks, and Output Behaviour in a Multi-Country Macroeconomic Model", Paper presented at the Annual Meetings of the Canadian Economics Association, June.

Meredith, G. (1989c), "Consumption and Wealth in INTERMOD", Economic Studies and Policy Analysis Division, Department of Finance, August.

Rostami, H. (1989), "A New Set of Money Demand Equations for INTERMOD", Department of Finance (Financial Analysis Division), February.

Samuelson, L. and E. Kurihara (1980), "OECD Trade Linkage Methods Applied to the EPA World Econometric Model", Economic Bulletin No. 18, Economic Research Institute, Japan.

Samuelson, L. and E. Kurihara (1980), "OECD Trade Linkage Methods Applied to the EPA World Econometric Model", Economic Bulletin No. 18, Economic Research Institute, Japan.

Taylor, J. (1979), "Aggregate Dynamics and Staggered Contracts", Journal of Political Economy, vol. 88, February, pp. 1-23.

Weil, P. (1986), "Monetary Policy and Budget Deficits with Overlapping Families of Infinitely-Lived Agents", mimeo, Harvard University.

Appendix A
A Model of Consumption and Wealth

This appendix describes the model that underlies the consumption and wealth relationships. We use a variant of the approach of Blanchard (1985) as extended by Weil (1986). There is a constant flow of new households into the population; this flow of new entrants means that the burden of future taxes will not be fully borne by existing households. Combined with the assumption that existing households are not altruistic vis-à-vis the flow of new entrants into the population, this implies that debt-financed tax cuts affect current-period wealth and consumption.

Households are assumed to have a constant probability of death, p, in each period, and an associated expected lifetime of 1/p periods. The yield on assets held by households equals the real interest rate, r, plus the probability of death. Similarly, the rate of time preference equals the "pure" rate of time preference, τ, plus the probability of death. Finally, new entrants are "born" into the population at rate b, giving a growth rate of the aggregate population of b-p.

Households alive in the initial period (denoted by the subscript 0) maximize the discounted utility of current and future consumption subject to the constraint that the present value of lifetime consumption not exceed the sum of initial-period financial and human wealth. The real interest rate is initially assumed to be constant. Lower-case letters signify values for the representative household, while upper-case letters refer to values for the economy as a whole:

$$\text{maximize:} \quad \sum_{t=0}^{\infty} (1/(1+\tau+p)^t)*u(c_t) \qquad \text{(A.1)}$$

$$\text{subject to:} \quad \sum_{t=0}^{\infty} (1/(1+r+p)^t)*(y_t-c_t) + w_0 \geq 0 \ , \qquad \text{(A.2)}$$

where: $u()$ = one-period utility function
c_t = consumption of household in period t
y_t = labour income of household in period t
w_0 = initial-period asset wealth of household.

The functional form for u() assumes constant relative risk aversion:

$$U(c_t) = 1/(1-\beta) * c_t^{1-\beta} , \qquad \beta \geq 0 , \quad \beta \neq 1,$$

$$U(c_t) = \ln(c_t) , \qquad \beta = 1 . \qquad \text{(A.3)}$$

The solution to the household's intertemporal optimization problem takes the form of an equation describing the growth of consumption, denoted by cdot (the time subscript has been suppressed because cdot is constant in all periods with constant real interest rates):

$$cdot = (1/\beta) * (r - \tau) . \qquad \text{(A.4)}$$

To derive a closed-form solution for the initial-period level of consumption, consumption in period t is expressed in terms of its initial-period level and growth rate given by (A.4):

$$c_t = c_0 * (1+(1/\beta)*(r-\tau))^t . \qquad \text{(A.5)}$$

(A.5) is substituted into the budget constraint (A.2) to give initial-period consumption as a function of initial-period human and financial wealth (h_0 and w_0 respectively):

$$c_0 = (((\beta-1)/\beta)*r + p + (1/\beta)*\tau) * (h_0 + w_0) , \qquad \text{(A.6)}$$

$$\text{where:} \quad h_0 = \sum_{t=0}^{\infty} (1/(1+r+p)^t)*y_t . \qquad \text{(A.7)}$$

Taking the simplest case where $\beta=1$ and $p=0$, i.e. where the utility function is logarithmic and expected lifetimes are infinite, (A.6) indicates that consumption is a fraction of wealth that equals the pure rate of time preference. More generally, consumption will be a decreasing fraction of wealth as interest rates rise if $\beta < 1$, and an increasing fraction if $\beta > 1$.[21]

Aggregate consumption and wealth are the values for the representative household multiplied by the number of households, thus we can "blow up" equation (A.6) to represent the aggregate economy. Aggregate values are represented by upper-case letters, and δ indicates consumption as a fraction of wealth as given by (A.6):

$$C_0 = \delta * (H_0 + W_0) . \qquad \text{(A.8)}$$

---

[21] However, this has no necessary implications for the interest-elasticity of consumption, as human wealth, and under certain circumstances financial wealth, also depend on the real interest rate.

Constructing human wealth requires some comment. For the individual household, (A.7) can be modified using a forward substitution for the next-period value of wealth to give:

$$h_0 = y_0 + h_1/(1+r+p) \ . \qquad (A.9)$$

When looking at the aggregate economy, it is necessary to abstract from the growth in labour income and human capital due to population growth. The above expression should be modified such that the discount factor for the aggregate economy reflects not just the probability of death, but also the population growth rate (i.e. the rate of gross new additions, b, less the death rate, p). The discount factor then becomes 1+r+p+(b-p) or 1+r+b, giving:

$$H_0 = Y_0 + H_1/(1+r+b) \ . \qquad (A.10)$$

If the real interest rate had been constant over the historical period, we could directly estimate equation (A.8):

$$\ln(C) = \alpha + \ln(H + W) \ , \qquad \text{where } \alpha = \ln(\delta) \ .$$

The parameters β and τ are under-identified; one must be pre-specified to derive the other given an estimate of α. More importantly, interest rates are not in fact constant over time. Two equations must be modified to incorporate variable interest rates: consumption as a fraction of wealth in (A.8) will now vary, as will the discount factor in the expression for human wealth (A.10). It is easy to modify equation (A.10) to incorporate variable interest rates by using the current-period short-term real interest rate in the denominator. The exact expression for δ -- consumption as a fraction of initial-period wealth -- is somewhat more complicated (see Blanchard, p. 233):

$$\delta = \left(1 \ / \ \left(1/(1+\delta_0') + 1/((1+\delta_0')(1+\delta_1')) + \ . \ . \ . \right) \right) \ ,$$

$$\text{where:} \qquad \delta_t' = ((\beta-1)/\beta)*r_t + p + (1/\beta)*\tau \ .$$

Instead of coding this expression explicitly into the model, the expressions in human wealth and δ have been linearized around the model's steady-state real interest rate, RRBAR. A separate interest-rate term is added to the consumption function that is an average of short- and long-term real interest rates to capture the effect on both wealth and δ of changes in interest rates. This approach has the advantage that it is easy to estimate the resulting consumption function and code the equation into the model.

Appendix B
Tables of Simulation Results

Permanent Increase in Real Government Spending of 1 Per Cent of Baseline GDP, Consistent Expectations:

Table B1: U.S. Shock
Table B1A: U.S. Shock, Detailed Results
Table B1B: U.S. Shock, Anticipated
Table B1C: U.S. Shock, Temporary
Table B2: Japan Shock
Table B3: German Shock
Table B4: France Shock
Table B5: U.K. Shock
Table B6: Italy Shock
Table B7: Canada Shock

Permanent Increase in Real Government Spending of 1 Per Cent of Baseline GDP, Adaptive Expectations:

Table B11: U.S. Shock
Table B11A: U.S. Shock, Detailed Results
Table B12: Japan Shock
Table B13: German Shock
Table B14: France Shock
Table B15: U.K. Shock
Table B16: Italy Shock
Table B17: Canada Shock

Permanent Increase in the Money Supply of 5 Per Cent:

Table B21: U.S. Shock, Consistent Expectations
Table B21A: U.S. Shock, Consistent Expectations, Detailed Results

Table 31: U.S. Shock, Adaptive Expectations
Table 31A: U.S. Shock, Adaptive Expectations, Detailed Results

Note on G-7 Results

Several of the following tables report results for the G-7 as a whole. Average G-7 interest rates and inflation rates are calculated using 1980 shares of nominal GNP as weights. Real values are expressed in 1980 U.S. dollars, and nominal values in current U.S. dollars. The change in the G-7 exchange rate is zero by definition.

TABLE B1: US FISCAL SHOCK, CONSISTENT EXPECTATIONS

	U.S.	JAPAN	GERMANY	FRANCE	U.K.	ITALY	CANADA	TOTAL G7
90								
REAL GDP	0.94	0.17	0.15	0.11	0.22	0.12	0.50	0.51
REAL GNP	0.99	0.19	0.17	0.11	0.22	0.11	0.49	0.53
REAL ABSORPTION	1.16	0.02	0.00	-0.01	0.02	0.02	0.09	0.52
CAPITAL STOCK	0.01	0.00	0.00	-0.01	-0.01	-0.00	0.01	0.00
GDP DEFLATOR	0.16	0.04	0.06	0.05	0.07	0.07	-0.05	0.09
ABSORPTION INFLATION (% PT)	0.04	0.15	0.19	0.12	0.11	0.15	0.19	0.00
SHORT-TERM INTEREST RATE (% PT)	0.50	0.09	0.10	0.07	0.13	0.08	0.21	0.27
LONG-TERM INTEREST RATE (% PT)	0.29	0.16	0.15	0.16	0.17	0.15	0.22	0.22
EXCHANGE RATE ($/LOCAL UNIT)*	1.13	-1.64	-1.74	-1.72	-1.58	-1.81	-0.87	0.00
DEVIATION AS % OF BASELINE GNP								
GOVERNMENT DEBT	0.69	-0.00	0.00	0.01	-0.02	0.05	0.02	-0.01
NET FOREIGN ASSETS	-0.07	0.34	0.38	0.05	0.25	-0.06	-0.09	0.00
FOREIGN SAVING**	0.07	-0.07	-0.06	-0.05	-0.15	-0.02	-0.16	-0.00
+ GEN. GOVERNMENT BALANCE	-0.69	0.00	-0.00	-0.01	0.02	-0.05	-0.02	-0.27
+ PRIVATE SAVING	0.65	0.12	0.10	0.06	0.13	0.09	0.24	0.09
= INVESTMENT	0.03	0.05	0.03	0.00	0.00	0.02	0.07	-0.18
92								
REAL GDP	-0.02	0.04	-0.00	-0.01	-0.05	0.01	0.00	-0.00
REAL GNP	-0.06	0.11	0.08	0.00	-0.02	0.01	-0.04	-0.00
REAL ABSORPTION	0.16	-0.08	-0.09	-0.12	-0.11	-0.11	-0.17	0.01
CAPITAL STOCK	-0.10	-0.02	-0.02	-0.05	-0.04	-0.04	-0.04	-0.06
GDP DEFLATOR	0.63	0.22	0.34	0.32	0.39	0.31	0.42	0.45
ABSORPTION INFLATION (% PT)	0.25	0.11	0.07	0.13	0.13	0.12	0.17	0.00
SHORT-TERM INTEREST RATE (% PT)	0.28	0.12	0.15	0.14	0.16	0.15	0.19	0.20
LONG-TERM INTEREST RATE (% PT)	0.24	0.16	0.14	0.16	0.16	0.15	0.21	0.19
EXCHANGE RATE ($/LOCAL UNIT)*	0.81	-1.12	-1.32	-1.23	-1.14	-1.36	-0.55	0.00
DEVIATION AS % OF BASELINE GNP								
GOVERNMENT DEBT	1.84	0.01	0.05	0.07	0.01	0.30	0.18	0.59
NET FOREIGN ASSETS	-0.39	0.47	0.49	0.22	0.41	0.08	0.22	-0.02
FOREIGN SAVING**	0.14	-0.12	-0.11	-0.08	-0.08	-0.06	-0.08	0.01
+ GEN. GOVERNMENT BALANCE	-0.58	-0.01	-0.03	-0.04	-0.02	-0.14	-0.09	-0.25
+ PRIVATE SAVING	0.40	0.18	0.19	0.12	0.12	0.23	0.20	0.09
= INVESTMENT	-0.04	0.05	0.05	0.00	0.02	0.03	0.03	-0.15
95								
REAL GDP	-0.34	-0.07	0.01	-0.10	-0.07	-0.10	-0.11	-0.19
REAL GNP	-0.45	0.03	0.13	-0.07	-0.04	-0.10	-0.14	-0.19
REAL ABSORPTION	-0.20	-0.14	-0.09	-0.17	-0.11	-0.22	-0.21	-0.17
CAPITAL STOCK	-0.24	-0.09	-0.03	-0.10	-0.08	-0.10	-0.11	-0.14
GDP DEFLATOR	0.97	0.45	0.36	0.51	0.49	0.48	0.65	0.67
ABSORPTION INFLATION (% PT)	0.04	0.05	-0.01	0.02	-0.00	0.02	0.01	0.00
SHORT-TERM INTEREST RATE (% PT)	0.28	0.17	0.17	0.19	0.19	0.17	0.24	0.22
LONG-TERM INTEREST RATE (% PT)	0.17	0.14	0.11	0.12	0.13	0.11	0.16	0.14
EXCHANGE RATE ($/LOCAL UNIT)*	0.57	-0.62	-0.99	-0.88	-0.81	-1.03	-0.34	0.00
DEVIATION AS % OF BASELINE GNP								
GOVERNMENT DEBT	2.75	0.05	0.10	0.18	0.06	0.62	0.39	1.07
NET FOREIGN ASSETS	-0.80	0.69	0.73	0.41	0.54	0.27	0.38	-0.04
FOREIGN SAVING**	0.18	-0.14	-0.16	-0.08	-0.06	-0.07	-0.05	0.01
+ GEN. GOVERNMENT BALANCE	-0.35	-0.01	-0.01	-0.04	-0.01	-0.11	-0.07	-0.15
+ PRIVATE SAVING	0.24	0.24	0.24	0.15	0.13	0.24	0.21	0.11
= INVESTMENT	0.06	0.08	0.07	0.04	0.06	0.06	0.10	-0.03

* FOR U.S. IS EFFECTIVE RATE
** EQUALS CURRENT ACCOUNT DEFICIT / BASELINE GDP

TABLE B1A: US FISCAL SHOCK, CONSISTENT EXPECTATIONS, DETAILED RESULTS

	90	91	92	93	94	95	96	97	98	99	100
UNITED STATES*											
REAL GDP	0.94	0.25	-0.02	-0.22	-0.31	-0.34	-0.33	-0.29	-0.24	-0.18	-0.12
REAL GNP	0.99	0.22	-0.06	-0.29	-0.40	-0.45	-0.45	-0.42	-0.37	-0.31	-0.25
CAPACITY UTILIZATION RATE	0.94	0.24	-0.00	-0.18	-0.26	-0.27	-0.25	-0.20	-0.15	-0.10	-0.05
REAL DISPOSABLE INCOME	0.78	-0.52	-1.15	-1.68	-2.05	-2.31	-2.49	-2.60	-2.66	-2.69	-2.68
REAL ABSORPTION	1.16	0.48	0.16	-0.05	-0.15	-0.20	-0.20	-0.18	-0.14	-0.10	-0.06
REAL CONSUMPTION	0.26	-0.65	-1.10	-1.41	-1.61	-1.72	-1.78	-1.79	-1.78	-1.75	-1.71
REAL INVESTMENT	0.14	-0.51	-0.75	-0.79	-0.69	-0.52	-0.34	-0.17	-0.01	0.10	0.19
REAL GOV'T SPENDING	4.76	4.82	4.88	4.95	5.01	5.07	5.14	5.20	5.27	5.33	5.40
REAL EXPORTS	-0.09	-0.84	-0.57	-0.65	-0.64	-0.59	-0.52	-0.43	-0.33	-0.24	-0.15
REAL IMPORTS	1.86	1.22	0.92	0.78	0.71	0.67	0.62	0.56	0.49	0.42	0.36
GDP DEFLATOR	0.16	0.37	0.63	0.83	0.94	0.97	0.92	0.82	0.69	0.54	0.39
ABSORPTION DEFLATOR	0.03	0.28	0.52	0.72	0.84	0.87	0.84	0.75	0.64	0.50	0.36
EXPORT DEFLATOR	0.14	-0.27	0.10	0.28	0.39	0.43	0.42	0.37	0.31	0.23	0.16
IMPORT DEFLATOR	-1.15	-0.70	-0.50	-0.30	-0.15	-0.04	0.03	0.07	0.09	0.08	0.05
PRICE IN FOREIGN MARKETS	-1.40	-0.94	-0.73	-0.55	-0.41	-0.29	-0.20	-0.13	-0.08	-0.04	-0.03
ABSORPTION INFLATION (% PT.)	0.04	0.26	0.25	0.20	0.12	0.04	-0.03	-0.09	-0.12	-0.14	-0.14
USER COST OF K (% PT.)	0.19	0.18	0.19	0.19	0.19	0.18	0.16	0.14	0.11	0.09	0.07
TOTAL REAL WEALTH	-1.15	-1.26	-1.34	-1.39	-1.43	-1.46	-1.48	-1.49	-1.49	-1.50	-1.50
HUMAN REAL WEALTH	-1.47	-1.65	-1.76	-1.84	-1.89	-1.93	-1.94	-1.95	-1.95	-1.95	-1.94
NOMINAL MONEY BALANCES	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
SHORT-TERM INT RATE (% PT.)	0.50	0.28	0.28	0.28	0.28	0.28	0.27	0.24	0.20	0.16	0.12
REAL SHORT-TERM RATE (% PT.)	0.35	0.02	0.05	0.11	0.20	0.27	0.32	0.34	0.33	0.30	0.26
LONG-TERM INT RATE (% PT.)	0.29	0.26	0.24	0.22	0.19	0.17	0.14	0.11	0.09	0.06	0.05
REAL LONG-TERM RATE (% PT.)	0.24	0.23	0.25	0.27	0.27	0.26	0.23	0.20	0.17	0.13	0.10
EXCHANGE RATE (=1)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
EXCHANGE RATE (EFFECTIVE)	1.13	0.89	0.81	0.73	0.65	0.57	0.49	0.40	0.33	0.26	0.20
REAL EXCHANGE RATE (EFFECTIVE)	1.58	1.33	1.38	1.40	1.37	1.28	1.14	0.96	0.78	0.59	0.43
REAL COMPETITIVENESS INDEX	0.02	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.00	0.00	0.00
CURRENT ACCOUNT ($ BILLIONS)	-3.74	-11.29	-8.62	-10.23	-11.53	-13.00	-14.28	-15.28	-15.96	-16.37	-16.64
CURR. ACCT. (LOCAL CURRENCY)	-3.74	-11.29	-8.62	-10.23	-11.53	-13.00	-14.28	-15.28	-15.96	-16.37	-16.64
FISCAL VARIABLES											
TAX RATE (% PT.)	0.12	0.44	0.66	0.84	0.98	1.10	1.19	1.25	1.30	1.34	1.35
TAX REVENUES	1.91	3.02	4.04	4.90	5.58	6.09	6.43	6.64	6.72	6.70	6.62
NOMINAL GOV'T SPENDING	4.31	5.20	5.60	6.06	6.34	6.53	6.61	6.60	6.53	6.42	6.28
DEBT/ACTUAL GDP (% PT.)	0.30	1.06	1.53	1.91	2.19	2.39	2.52	2.59	2.61	2.60	2.55
TARGET DEBT/GDP (% PT.)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
DEFICIT (LOCAL CURRENCY)	37.51	39.71	35.59	33.19	29.59	25.94	22.11	18.23	14.45	10.96	7.91
DEVIATION AS % OF BASELINE GDP											
REAL WEALTH	-12.99	-14.25	-15.03	-15.62	-16.02	-16.30	-16.46	-16.56	-16.60	-16.61	-16.60
GOVERNMENT DEBT	0.65	1.26	1.74	2.12	2.41	2.60	2.73	2.78	2.78	2.73	2.65
CAPITAL STOCK	0.02	-0.07	-0.19	-0.31	-0.40	-0.45	-0.47	-0.46	-0.42	-0.37	-0.31
NFA	-0.06	-0.25	-0.36	-0.49	-0.62	-0.75	-0.89	-1.01	-1.13	-1.23	-1.32
TRADE BALANCE	-0.06	-0.14	-0.08	-0.08	-0.08	-0.07	-0.07	-0.06	-0.05	-0.04	-0.03
PRIMARY GOV'T BALANCE	-0.65	-0.51	-0.38	-0.27	-0.16	-0.07	0.01	0.07	0.12	0.16	0.18
FOREIGN SAVING	0.06	0.18	0.13	0.15	0.16	0.17	0.17	0.18	0.17	0.17	0.16
+ GEN. GOV. BALANCE	-0.65	-0.65	-0.55	-0.48	-0.41	-0.34	-0.27	-0.21	-0.16	-0.11	-0.08
+ INVESTMENT	0.03	-0.04	-0.04	-0.01	0.02	0.06	0.08	0.10	0.11	0.10	0.09
= PRIVATE SAVING	0.61	0.43	0.38	0.32	0.27	0.22	0.18	0.13	0.09	0.05	0.01

* % DIFFERENCE SHOCK-MINUS-CONTROL UNLESS OTHERWISE INDICATED

TABLE B1B: US FISCAL SHOCK, CONSISTENT EXPECTATIONS, ANTICIPATED

	90	91	92	93	94	95	96	97	98	99	100
UNITED STATES*											
REAL GDP	-0.01	0.57	0.22	-0.04	-0.18	-0.25	-0.27	-0.26	-0.22	-0.17	-0.12
REAL GNP	-0.01	0.60	0.19	-0.09	-0.25	-0.33	-0.36	-0.35	-0.32	-0.28	-0.23
CAPACITY UTILIZATION RATE	-0.01	0.57	0.21	-0.03	-0.16	-0.21	-0.21	-0.19	-0.15	-0.11	-0.06
REAL DISPOSABLE INCOME	0.10	0.25	-0.60	-1.24	-1.70	-2.03	-2.26	-2.42	-2.52	-2.58	-2.61
REAL ABSORPTION	0.04	0.82	0.37	0.09	-0.06	-0.13	-0.16	-0.15	-0.13	-0.10	-0.06
REAL CONSUMPTION	0.02	-0.24	-0.85	-1.24	-1.48	-1.62	-1.70	-1.73	-1.74	-1.72	-1.69
REAL INVESTMENT	0.17	-0.01	-0.43	-0.62	-0.62	-0.53	-0.39	-0.24	-0.11	0.01	0.10
REAL GOV'T SPENDING	0.00	4.82	4.88	4.95	5.01	5.07	5.14	5.20	5.27	5.33	5.40
REAL EXPORTS	-0.20	-0.38	-0.46	-0.47	-0.50	-0.50	-0.46	-0.40	-0.34	-0.26	-0.19
REAL IMPORTS	0.20	1.77	0.87	0.64	0.55	0.52	0.50	0.48	0.44	0.40	0.36
GDP DEFLATOR	0.05	0.12	0.31	0.51	0.66	0.74	0.75	0.71	0.62	0.51	0.40
ABSORPTION DEFLATOR	-0.05	0.05	0.24	0.43	0.58	0.66	0.68	0.64	0.57	0.47	0.37
EXPORT DEFLATOR	0.05	-0.30	-0.10	0.12	0.26	0.32	0.34	0.32	0.28	0.22	0.16
IMPORT DEFLATOR	-0.82	-0.64	-0.50	-0.32	-0.19	-0.09	-0.02	0.02	0.04	0.04	0.02
PRICE IN FOREIGN MARKETS	-0.95	-0.89	-0.65	-0.49	-0.37	-0.29	-0.21	-0.16	-0.12	-0.09	-0.08
ABSORPTION INFLATION (% PT.)	-0.05	0.10	0.20	0.20	0.15	0.08	0.02	-0.04	-0.08	-0.10	-0.11
USER COST OF K (% PT.)	0.13	0.14	0.15	0.15	0.15	0.15	0.14	0.13	0.11	0.09	0.08
TOTAL REAL WEALTH	-1.12	-1.17	-1.26	-1.32	-1.36	-1.40	-1.42	-1.44	-1.45	-1.45	-1.46
HUMAN REAL WEALTH	-1.38	-1.50	-1.64	-1.75	-1.82	-1.86	-1.90	-1.91	-1.92	-1.92	-1.92
NOMINAL MONEY BALANCES	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
SHORT-TERM INT RATE (% PT.)	0.02	0.31	0.24	0.21	0.22	0.22	0.22	0.20	0.18	0.15	0.12
REAL SHORT-TERM RATE (% PT.)	-0.01	0.16	0.04	0.04	0.09	0.16	0.22	0.26	0.27	0.26	0.23
LONG-TERM INT RATE (% PT.)	0.21	0.22	0.20	0.19	0.17	0.16	0.14	0.12	0.10	0.08	0.06
REAL LONG-TERM RATE (% PT.)	0.16	0.18	0.19	0.20	0.21	0.21	0.20	0.19	0.16	0.14	0.11
EXCHANGE RATE (=1)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
EXCHANGE RATE (EFFECTIVE)	0.76	0.79	0.70	0.63	0.57	0.52	0.46	0.41	0.35	0.30	0.25
REAL EXCHANGE RATE (EFFECTIVE)	1.01	1.01	0.97	1.01	1.05	1.04	0.98	0.88	0.75	0.61	0.48
REAL COMPETITIVENESS INDEX	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.00	0.00	0.00
CURRENT ACCOUNT ($ BILLIONS)	2.84	-10.29	-8.08	-7.88	-8.62	-9.82	-11.10	-12.26	-13.17	-13.86	-14.37
CURR. ACCT. (LOCAL CURRENCY)	2.84	-10.29	-8.08	-7.88	-8.62	-9.82	-11.10	-12.26	-13.17	-13.86	-14.37
FISCAL VARIABLES											
TAX RATE (% PT.)	-0.01	0.19	0.46	0.68	0.85	0.98	1.09	1.17	1.23	1.28	1.31
TAX REVENUES	0.00	1.77	2.97	3.95	4.76	5.39	5.85	6.16	6.34	6.42	6.42
NOMINAL GOV'T SPENDING	-0.04	4.43	5.14	5.57	5.90	6.15	6.31	6.38	6.39	6.34	6.26
DEBT/ACTUAL GDP (% PT.)	-0.02	0.46	1.10	1.58	1.93	2.19	2.36	2.47	2.53	2.55	2.53
TARGET DEBT/GDP (% PT.)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
DEFICIT (LOCAL CURRENCY)	-0.58	42.29	40.86	37.13	33.17	29.31	25.48	21.66	17.95	14.47	11.34
DEVIATION AS % OF BASELINE GDP											
REAL WEALTH	-12.65	-13.24	-14.13	-14.78	-15.26	-15.59	-15.82	-15.97	-16.07	-16.13	-16.17
GOVERNMENT DEBT	-0.01	0.68	1.27	1.74	2.09	2.35	2.53	2.63	2.68	2.67	2.63
CAPITAL STOCK	0.03	0.03	-0.05	-0.15	-0.24	-0.31	-0.35	-0.37	-0.35	-0.32	-0.28
NFA	0.05	-0.12	-0.24	-0.34	-0.44	-0.54	-0.65	-0.75	-0.85	-0.94	-1.03
TRADE BALANCE	0.05	-0.17	-0.08	-0.06	-0.06	-0.06	-0.05	-0.05	-0.05	-0.04	-0.04
PRIMARY GOV'T BALANCE	0.01	-0.68	-0.51	-0.37	-0.26	-0.15	-0.07	0.01	0.07	0.11	0.15
FOREIGN SAVING	-0.05	0.17	0.12	0.11	0.12	0.13	0.14	0.14	0.14	0.14	0.14
+ GEN. GOV. BALANCE	0.01	-0.69	-0.63	-0.54	-0.45	-0.38	-0.31	-0.25	-0.19	-0.15	-0.11
+ INVESTMENT	0.02	0.01	-0.03	-0.03	-0.01	0.02	0.05	0.07	0.08	0.08	0.08
= PRIVATE SAVING	0.06	0.53	0.47	0.39	0.33	0.27	0.22	0.18	0.13	0.09	0.05

* % DIFFERENCE SHOCK-MINUS-CONTROL UNLESS OTHERWISE INDICATED

TABLE B1C: US FISCAL SHOCK, CONSISTENT EXPECTATIONS, TEMPORARY

	90	91	92	93	94	95	96	97	98	99	100
UNITED STATES*											
REAL GDP	0.99	-0.26	-0.18	-0.15	-0.11	-0.09	-0.07	-0.06	-0.05	-0.05	-0.04
REAL GNP	1.05	-0.32	-0.21	-0.17	-0.14	-0.12	-0.11	-0.10	-0.09	-0.09	-0.08
CAPACITY UTILIZATION RATE	0.99	-0.27	-0.18	-0.13	-0.10	-0.07	-0.06	-0.05	-0.04	-0.03	-0.03
REAL DISPOSABLE INCOME	0.72	-0.71	-0.50	-0.40	-0.32	-0.27	-0.24	-0.21	-0.19	-0.17	-0.15
REAL ABSORPTION	1.17	-0.29	-0.17	-0.11	-0.07	-0.05	-0.04	-0.04	-0.04	-0.03	-0.03
REAL CONSUMPTION	0.26	-0.37	-0.20	-0.13	-0.09	-0.07	-0.06	-0.05	-0.05	-0.05	-0.05
REAL INVESTMENT	0.22	-0.34	-0.23	-0.15	-0.10	-0.06	-0.05	-0.03	-0.02	-0.02	-0.01
REAL GOV'T SPENDING	4.76	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
REAL EXPORTS	0.14	-0.40	-0.08	-0.17	-0.15	-0.13	-0.11	-0.08	-0.07	-0.05	-0.04
REAL IMPORTS	1.71	-0.56	0.03	0.13	0.17	0.17	0.15	0.13	0.10	0.07	0.05
GDP DEFLATOR	0.10	0.24	0.32	0.34	0.32	0.30	0.27	0.24	0.21	0.18	0.15
ABSORPTION DEFLATOR	0.08	0.23	0.29	0.31	0.30	0.28	0.25	0.22	0.19	0.17	0.14
EXPORT DEFLATOR	0.08	0.07	0.24	0.20	0.18	0.16	0.15	0.14	0.12	0.11	0.10
IMPORT DEFLATOR	-0.25	-0.01	0.05	0.05	0.06	0.06	0.07	0.08	0.08	0.08	0.09
PRICE IN FOREIGN MARKETS	-0.36	0.03	-0.01	-0.02	-0.02	-0.00	0.02	0.04	0.05	0.06	0.07
ABSORPTION INFLATION (% PT.)	0.08	0.15	0.07	0.02	-0.01	-0.02	-0.03	-0.03	-0.03	-0.03	-0.03
USER COST OF K (% PT.)	0.07	0.04	0.05	0.05	0.05	0.05	0.04	0.04	0.03	0.03	0.03
TOTAL REAL WEALTH	0.06	-0.01	-0.02	-0.02	-0.02	-0.03	-0.03	-0.04	-0.04	-0.04	-0.05
HUMAN REAL WEALTH	0.01	-0.06	-0.04	-0.03	-0.03	-0.02	-0.02	-0.02	-0.02	-0.01	-0.01
NOMINAL MONEY BALANCES	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
SHORT-TERM INT RATE (% PT.)	0.49	-0.01	0.06	0.09	0.10	0.10	0.09	0.08	0.07	0.06	0.05
REAL SHORT-TERM RATE (% PT.)	0.40	-0.11	0.02	0.08	0.11	0.11	0.11	0.10	0.09	0.08	0.07
LONG-TERM INT RATE (% PT.)	0.10	0.05	0.06	0.06	0.06	0.05	0.05	0.04	0.04	0.03	0.03
REAL LONG-TERM RATE (% PT.)	0.09	0.05	0.06	0.07	0.07	0.06	0.06	0.05	0.05	0.04	0.03
EXCHANGE RATE (=1)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
EXCHANGE RATE (EFFECTIVE)	0.28	0.02	0.06	0.07	0.08	0.07	0.06	0.05	0.04	0.03	0.02
REAL EXCHANGE RATE (EFFECTIVE)	0.44	0.22	0.34	0.37	0.35	0.30	0.25	0.20	0.16	0.11	0.08
REAL COMPETITIVENESS INDEX	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
CURRENT ACCOUNT ($ BILLIONS)	-7.34	-0.96	-0.58	-2.48	-3.22	-3.77	-4.10	-4.31	-4.44	-4.54	-4.61
CURR. ACCT. (LOCAL CURRENCY)	-7.34	-0.96	-0.58	-2.48	-3.22	-3.77	-4.10	-4.31	-4.44	-4.54	-4.61
FISCAL VARIABLES											
TAX RATE (% PT.)	0.13	0.25	0.19	0.15	0.13	0.11	0.10	0.09	0.08	0.07	0.06
TAX REVENUES	1.92	1.27	1.08	0.96	0.85	0.76	0.66	0.58	0.51	0.44	0.38
NOMINAL GOV'T SPENDING	4.36	0.77	0.48	0.52	0.50	0.47	0.43	0.38	0.33	0.29	0.24
DEBT/ACTUAL GDP (% PT.)	0.31	0.58	0.42	0.32	0.25	0.20	0.16	0.13	0.10	0.08	0.06
TARGET DEBT/GDP (% PT.)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
DEFICIT (LOCAL CURRENCY)	37.97	-2.70	-5.23	-3.69	-3.06	-2.59	-2.31	-2.17	-2.11	-2.08	-2.09
DEVIATION AS % OF BASELINE GDP											
REAL WEALTH	0.64	-0.17	-0.18	-0.23	-0.28	-0.32	-0.37	-0.41	-0.45	-0.48	-0.51
GOVERNMENT DEBT	0.66	0.58	0.46	0.38	0.32	0.27	0.22	0.19	0.15	0.12	0.10
CAPITAL STOCK	0.04	-0.02	-0.06	-0.08	-0.09	-0.09	-0.09	-0.09	-0.09	-0.08	-0.08
NFA	-0.13	-0.14	-0.14	-0.16	-0.20	-0.24	-0.27	-0.31	-0.34	-0.36	-0.39
TRADE BALANCE	-0.13	0.03	0.00	-0.01	-0.02	-0.02	-0.02	-0.01	-0.01	-0.01	-0.01
PRIMARY GOV'T BALANCE	-0.66	0.17	0.13	0.11	0.09	0.08	0.07	0.06	0.06	0.05	0.04
FOREIGN SAVING	0.13	0.02	0.01	0.04	0.04	0.05	0.05	0.05	0.05	0.05	0.04
+ GEN. GOV. BALANCE	-0.66	0.04	0.08	0.05	0.04	0.03	0.03	0.02	0.02	0.02	0.02
+ INVESTMENT	0.05	-0.02	0.01	0.03	0.03	0.04	0.03	0.03	0.03	0.02	0.02
= PRIVATE SAVING	0.58	-0.08	-0.08	-0.06	-0.05	-0.05	-0.04	-0.04	-0.04	-0.04	-0.04

* % DIFFERENCE SHOCK-MINUS-CONTROL UNLESS OTHERWISE INDICATED

TABLE B2: JA FISCAL SHOCK, CONSISTENT EXPECTATIONS

	U.S.	JAPAN	GERMANY	FRANCE	U.K.	ITALY	CANADA	TOTAL G7
90								
REAL GDP	0.04	0.85	0.04	0.03	0.07	0.04	0.06	0.18
REAL GNP	0.04	0.83	0.04	0.03	0.07	0.04	0.06	0.18
REAL ABSORPTION	-0.01	1.13	-0.01	-0.01	-0.01	0.00	0.00	0.19
CAPITAL STOCK	-0.00	0.02	-0.01	-0.01	-0.01	-0.00	-0.01	0.00
GDP DEFLATOR	0.01	0.02	0.06	0.04	0.03	0.04	0.05	0.03
ABSORPTION INFLATION (% PT)	0.06	-0.14	0.10	0.06	0.06	0.08	0.04	0.00
SHORT-TERM INTEREST RATE (% PT)	0.02	0.39	0.05	0.03	0.05	0.04	0.05	0.09
LONG-TERM INTEREST RATE (% PT)	0.10	0.23	0.10	0.10	0.10	0.09	0.11	0.12
EXCHANGE RATE ($/LOCAL UNIT)*	-0.26	1.93	-0.01	-0.03	0.04	-0.06	0.10	0.00
DEVIATION AS % OF BASELINE GNP								
GOVERNMENT DEBT	0.01	0.61	0.01	0.00	-0.00	0.02	0.00	0.22
NET FOREIGN ASSETS	0.00	-0.42	0.03	0.02	0.04	0.00	0.10	-0.00
FOREIGN SAVING**	-0.00	0.11	-0.02	-0.02	-0.05	-0.00	-0.07	0.00
+ GEN. GOVERNMENT BALANCE	-0.01	-0.61	-0.01	-0.00	0.00	-0.02	-0.00	-0.15
+ PRIVATE SAVING	0.01	0.49	0.03	0.02	0.04	0.04	0.07	0.28
= INVESTMENT	0.01	-0.00	0.00	-0.00	-0.00	0.01	-0.00	0.13
92								
REAL GDP	0.02	-0.01	-0.01	0.00	-0.02	0.01	-0.01	0.00
REAL GNP	0.01	-0.04	0.00	0.00	-0.02	0.01	-0.01	-0.00
REAL ABSORPTION	-0.05	0.34	-0.06	-0.06	-0.07	-0.06	-0.07	0.01
CAPITAL STOCK	-0.02	-0.07	-0.02	-0.03	-0.03	-0.02	-0.03	-0.03
GDP DEFLATOR	0.14	0.43	0.21	0.18	0.21	0.17	0.19	0.20
ABSORPTION INFLATION (% PT)	0.07	0.16	0.05	0.07	0.08	0.07	0.08	0.00
SHORT-TERM INTEREST RATE (% PT)	0.07	0.19	0.09	0.08	0.08	0.08	0.08	0.10
LONG-TERM INTEREST RATE (% PT)	0.11	0.20	0.11	0.11	0.11	0.10	0.12	0.13
EXCHANGE RATE ($/LOCAL UNIT)*	-0.18	1.53	-0.07	-0.05	0.00	-0.10	0.08	0.00
DEVIATION AS % OF BASELINE GNP								
GOVERNMENT DEBT	0.05	1.57	0.04	0.04	0.02	0.16	0.07	0.46
NET FOREIGN ASSETS	0.07	-0.66	0.10	0.10	0.11	0.06	0.15	-0.02
FOREIGN SAVING**	-0.03	0.17	-0.04	-0.04	-0.03	-0.03	-0.03	0.01
+ GEN. GOVERNMENT BALANCE	-0.03	-0.48	-0.02	-0.02	-0.01	-0.08	-0.04	-0.14
+ PRIVATE SAVING	0.07	0.27	0.08	0.07	0.05	0.13	0.08	0.23
= INVESTMENT	0.01	-0.05	0.02	0.00	0.01	0.02	0.01	0.10
95								
REAL GDP	-0.05	-0.27	-0.01	-0.05	-0.04	-0.05	-0.05	-0.08
REAL GNP	-0.06	-0.32	0.03	-0.04	-0.04	-0.05	-0.07	-0.09
REAL ABSORPTION	-0.10	0.05	-0.08	-0.10	-0.08	-0.13	-0.09	-0.07
CAPITAL STOCK	-0.05	-0.20	-0.03	-0.06	-0.05	-0.06	-0.06	-0.08
GDP DEFLATOR	0.31	0.72	0.26	0.31	0.30	0.30	0.32	0.35
ABSORPTION INFLATION (% PT)	0.04	0.06	0.01	0.03	0.01	0.03	0.03	0.00
SHORT-TERM INTEREST RATE (% PT)	0.12	0.20	0.11	0.12	0.12	0.11	0.12	0.13
LONG-TERM INTEREST RATE (% PT)	0.11	0.18	0.10	0.10	0.11	0.10	0.11	0.12
EXCHANGE RATE ($/LOCAL UNIT)*	-0.12	1.29	-0.14	-0.09	-0.04	-0.15	0.05	0.00
DEVIATION AS % OF BASELINE GNP								
GOVERNMENT DEBT	0.15	2.30	0.09	0.11	0.05	0.37	0.19	0.68
NET FOREIGN ASSETS	0.11	-0.95	0.26	0.21	0.17	0.16	0.15	-0.04
FOREIGN SAVING**	-0.02	0.16	-0.07	-0.04	-0.03	-0.04	-0.01	0.01
+ GEN. GOVERNMENT BALANCE	-0.04	-0.29	-0.01	-0.03	-0.01	-0.08	-0.04	-0.10
+ PRIVATE SAVING	0.08	0.18	0.13	0.09	0.07	0.16	0.10	0.21
= INVESTMENT	0.03	0.04	0.05	0.02	0.04	0.04	0.05	0.12

* FOR U.S. IS EFFECTIVE RATE
** EQUALS CURRENT ACCOUNT DEFICIT / BASELINE GDP

TABLE B3: GR FISCAL SHOCK, CONSISTENT EXPECTATIONS

	U.S.	JAPAN	GERMANY	FRANCE	U.K.	ITALY	CANADA	TOTAL G7
90								
REAL GDP	0.02	0.04	0.83	0.05	0.13	0.07	0.03	0.13
REAL GNP	0.02	0.04	0.81	0.05	0.13	0.07	0.03	0.13
REAL ABSORPTION	-0.01	0.00	1.26	0.01	0.01	0.02	-0.01	0.14
CAPITAL STOCK	-0.00	0.00	0.02	0.00	-0.00	0.00	-0.00	0.00
GDP DEFLATOR	0.00	0.03	0.35	0.03	0.01	0.03	0.03	0.05
ABSORPTION INFLATION (% PT)	0.04	0.05	0.06	0.05	0.09	0.08	0.05	0.00
SHORT-TERM INTEREST RATE (% PT)	0.01	0.03	0.53	0.04	0.06	0.05	0.03	0.09
LONG-TERM INTEREST RATE (% PT)	0.05	0.05	0.20	0.07	0.08	0.07	0.05	0.07
EXCHANGE RATE ($/LOCAL UNIT)*	-0.22	0.03	1.14	0.12	0.24	0.16	0.02	0.00
DEVIATION AS % OF BASELINE GNP								
GOVERNMENT DEBT	0.01	-0.00	0.57	0.00	-0.00	0.03	0.01	0.11
NET FOREIGN ASSETS	-0.01	0.01	-0.30	0.02	0.03	0.01	0.03	-0.00
FOREIGN SAVING**	0.01	-0.02	0.10	-0.02	-0.04	-0.01	-0.02	0.00
+ GEN. GOVERNMENT BALANCE	-0.01	0.00	-0.57	-0.00	0.00	-0.03	-0.01	-0.07
+ PRIVATE SAVING	-0.00	0.03	0.55	0.04	0.05	0.05	0.03	0.11
= INVESTMENT	0.01	0.01	0.07	0.01	0.01	0.02	0.00	0.05
92								
REAL GDP	0.01	0.01	0.02	0.02	-0.04	0.01	-0.02	0.01
REAL GNP	0.00	0.02	-0.03	0.03	-0.03	0.02	-0.03	0.00
REAL ABSORPTION	-0.02	-0.02	0.45	-0.03	-0.07	-0.05	-0.04	0.02
CAPITAL STOCK	-0.01	-0.01	-0.02	-0.01	-0.02	-0.01	-0.02	-0.01
GDP DEFLATOR	0.08	0.08	0.44	0.11	0.22	0.14	0.12	0.14
ABSORPTION INFLATION (% PT)	0.03	0.03	0.09	0.05	0.06	0.05	0.04	0.00
SHORT-TERM INTEREST RATE (% PT)	0.04	0.04	0.20	0.06	0.08	0.07	0.05	0.07
LONG-TERM INTEREST RATE (% PT)	0.06	0.06	0.16	0.07	0.08	0.07	0.06	0.07
EXCHANGE RATE ($/LOCAL UNIT)*	-0.15	0.02	0.69	0.11	0.19	0.14	0.01	0.00
DEVIATION AS % OF BASELINE GNP								
GOVERNMENT DEBT	0.03	0.01	1.55	0.02	0.02	0.15	0.05	0.22
NET FOREIGN ASSETS	0.01	0.06	-0.82	0.10	0.07	0.10	-0.00	-0.03
FOREIGN SAVING**	-0.01	-0.02	0.27	-0.04	-0.01	-0.04	0.02	0.01
+ GEN. GOVERNMENT BALANCE	-0.02	-0.01	-0.46	-0.01	-0.02	-0.07	-0.02	-0.07
+ PRIVATE SAVING	0.03	0.05	0.19	0.06	0.04	0.12	0.02	0.08
= INVESTMENT	0.01	0.02	-0.01	0.00	0.01	0.01	0.02	0.03
95								
REAL GDP	-0.02	-0.02	-0.06	-0.03	-0.04	-0.05	-0.03	-0.03
REAL GNP	-0.03	0.00	-0.14	-0.02	-0.03	-0.04	-0.04	-0.04
REAL ABSORPTION	-0.04	-0.04	0.21	-0.06	-0.06	-0.09	-0.04	-0.02
CAPITAL STOCK	-0.02	-0.02	-0.06	-0.03	-0.04	-0.04	-0.03	-0.03
GDP DEFLATOR	0.15	0.15	0.36	0.19	0.21	0.21	0.16	0.19
ABSORPTION INFLATION (% PT)	0.01	0.02	-0.01	0.01	-0.01	0.01	0.00	0.00
SHORT-TERM INTEREST RATE (% PT)	0.06	0.06	0.13	0.07	0.08	0.07	0.06	0.07
LONG-TERM INTEREST RATE (% PT)	0.06	0.07	0.14	0.07	0.08	0.07	0.06	0.07
EXCHANGE RATE ($/LOCAL UNIT)*	-0.11	0.03	0.54	0.09	0.14	0.10	0.00	0.00
DEVIATION AS % OF BASELINE GNP								
GOVERNMENT DEBT	0.08	0.02	2.18	0.07	0.05	0.28	0.11	0.31
NET FOREIGN ASSETS	0.02	0.13	-1.33	0.18	0.07	0.17	-0.08	-0.05
FOREIGN SAVING**	-0.00	-0.03	0.22	-0.03	-0.00	-0.03	0.03	0.01
+ GEN. GOVERNMENT BALANCE	-0.02	-0.00	-0.25	-0.02	-0.01	-0.05	-0.02	-0.04
+ PRIVATE SAVING	0.03	0.07	0.04	0.06	0.04	0.10	0.03	0.07
= INVESTMENT	0.02	0.03	0.01	0.01	0.03	0.03	0.03	0.04

* FOR U.S. IS EFFECTIVE RATE
** EQUALS CURRENT ACCOUNT DEFICIT / BASELINE GDP

TABLE 84: FR FISCAL SHOCK, CONSISTENT EXPECTATIONS

	U.S.	JAPAN	GERMANY	FRANCE	U.K.	ITALY	CANADA	TOTAL G7
90								
REAL GDP	0.02	0.03	0.08	0.82	0.09	0.06	0.04	0.11
REAL GNP	0.02	0.03	0.08	0.82	0.09	0.06	0.04	0.12
REAL ABSORPTION	0.00	0.01	0.03	1.19	0.03	0.02	0.01	0.12
CAPITAL STOCK	0.00	0.00	0.01	0.04	0.00	0.00	0.00	0.01
GDP DEFLATOR	-0.00	0.01	0.02	0.13	0.01	0.01	0.01	0.02
ABSORPTION INFLATION (% PT)	0.02	0.02	0.03	0.01	0.03	0.03	0.02	0.00
SHORT-TERM INTEREST RATE (% PT)	0.01	0.02	0.05	0.43	0.05	0.03	0.02	0.06
LONG-TERM INTEREST RATE (% PT)	0.02	0.03	0.04	0.20	0.04	0.04	0.03	0.05
EXCHANGE RATE ($/LOCAL UNIT)*	-0.09	0.01	0.06	0.75	0.06	0.04	0.02	0.00
DEVIATION AS % OF BASELINE GNP								
GOVERNMENT DEBT	0.00	-0.00	-0.01	0.64	-0.01	0.02	0.00	0.07
NET FOREIGN ASSETS	0.00	0.01	0.03	-0.25	0.04	0.02	0.03	-0.01
FOREIGN SAVING**	-0.00	-0.02	-0.04	0.25	-0.04	-0.02	-0.02	0.01
+ GEN. GOVERNMENT BALANCE	-0.00	0.00	0.01	-0.64	0.01	-0.02	-0.00	-0.05
+ PRIVATE SAVING	0.01	0.02	0.05	0.48	0.05	0.04	0.03	0.07
= INVESTMENT	0.01	0.01	0.02	0.09	0.01	0.01	0.01	0.03
92								
REAL GDP	0.01	0.01	0.01	0.04	-0.00	0.02	0.01	0.01
REAL GNP	0.01	0.01	0.02	0.00	0.00	0.02	0.00	0.01
REAL ABSORPTION	-0.01	-0.01	-0.01	0.31	-0.02	-0.01	-0.01	0.02
CAPITAL STOCK	0.00	0.00	0.01	-0.01	-0.00	0.00	-0.00	0.00
GDP DEFLATOR	0.04	0.04	0.08	0.46	0.10	0.07	0.06	0.10
ABSORPTION INFLATION (% PT)	0.02	0.02	0.02	0.17	0.04	0.03	0.03	0.00
SHORT-TERM INTEREST RATE (% PT)	0.02	0.02	0.04	0.22	0.05	0.04	0.03	0.05
LONG-TERM INTEREST RATE (% PT)	0.03	0.03	0.04	0.16	0.05	0.04	0.03	0.05
EXCHANGE RATE ($/LOCAL UNIT)*	-0.06	0.00	0.04	0.46	0.05	0.04	0.02	0.00
DEVIATION AS % OF BASELINE GNP								
GOVERNMENT DEBT	0.01	0.00	0.01	1.66	0.00	0.08	0.02	0.16
NET FOREIGN ASSETS	0.02	0.04	0.08	-0.68	0.07	0.06	0.03	-0.02
FOREIGN SAVING**	-0.00	-0.01	-0.02	0.21	-0.02	-0.02	-0.00	0.01
+ GEN. GOVERNMENT BALANCE	-0.01	-0.00	-0.01	-0.51	-0.01	-0.03	-0.01	-0.05
+ PRIVATE SAVING	0.02	0.03	0.05	0.28	0.03	0.07	0.03	0.06
= INVESTMENT	0.01	0.01	0.02	-0.02	0.01	0.01	0.01	0.02
95								
REAL GDP	-0.00	-0.00	0.01	-0.22	-0.02	-0.01	-0.01	-0.02
REAL GNP	-0.00	0.01	0.02	-0.29	-0.01	-0.00	-0.02	-0.03
REAL ABSORPTION	-0.02	-0.02	-0.02	0.03	-0.03	-0.03	-0.02	-0.02
CAPITAL STOCK	-0.00	-0.00	0.00	-0.10	-0.01	-0.00	-0.01	-0.01
GDP DEFLATOR	0.08	0.09	0.11	0.60	0.15	0.12	0.10	0.16
ABSORPTION INFLATION (% PT)	0.01	0.01	0.01	-0.01	0.01	0.01	0.01	0.00
SHORT-TERM INTEREST RATE (% PT)	0.04	0.04	0.05	0.17	0.06	0.05	0.04	0.06
LONG-TERM INTEREST RATE (% PT)	0.03	0.04	0.05	0.14	0.05	0.05	0.04	0.05
EXCHANGE RATE ($/LOCAL UNIT)*	-0.05	0.01	0.03	0.34	0.05	0.03	0.01	0.00
DEVIATION AS % OF BASELINE GNP								
GOVERNMENT DEBT	0.04	0.01	0.03	2.41	0.02	0.17	0.06	0.24
NET FOREIGN ASSETS	0.02	0.08	0.15	-1.19	0.09	0.10	0.01	-0.04
FOREIGN SAVING**	-0.00	-0.02	-0.03	0.23	-0.01	-0.02	0.01	0.01
+ GEN. GOVERNMENT BALANCE	-0.01	-0.00	-0.01	-0.29	-0.00	-0.03	-0.01	-0.03
+ PRIVATE SAVING	0.03	0.05	0.06	0.08	0.03	0.08	0.03	0.05
= INVESTMENT	0.01	0.02	0.02	0.01	0.02	0.02	0.02	0.02

* FOR U.S. IS EFFECTIVE RATE
** EQUALS CURRENT ACCOUNT DEFICIT / BASELINE GDP

TABLE B5: UK FISCAL SHOCK, CONSISTENT EXPECTATIONS

	U.S.	JAPAN	GERMANY	FRANCE	U.K.	ITALY	CANADA	TOTAL G7
90								
REAL GDP	0.02	0.03	0.12	0.05	0.60	0.11	0.02	0.09
REAL GNP	0.02	0.03	0.12	0.05	0.59	0.11	0.02	0.09
REAL ABSORPTION	0.00	0.01	0.05	0.02	1.11	0.05	0.01	0.10
CAPITAL STOCK	0.00	0.00	0.01	0.00	0.03	0.01	0.00	0.01
GDP DEFLATOR	-0.00	0.01	0.02	0.01	0.20	0.01	0.01	0.02
ABSORPTION INFLATION (% PT)	0.01	0.02	0.03	0.02	-0.01	0.03	0.01	0.00
SHORT-TERM INTEREST RATE (% PT)	0.01	0.02	0.06	0.03	0.36	0.05	0.01	0.05
LONG-TERM INTEREST RATE (% PT)	0.01	0.02	0.03	0.03	0.14	0.04	0.02	0.03
EXCHANGE RATE ($/LOCAL UNIT)*	-0.06	0.01	0.08	0.03	0.49	0.07	0.01	0.00
DEVIATION AS % OF BASELINE GNP								
GOVERNMENT DEBT	0.00	-0.00	-0.01	-0.00	0.59	0.02	0.00	0.05
NET FOREIGN ASSETS	0.00	0.01	0.05	0.03	-0.36	0.04	0.01	-0.01
FOREIGN SAVING**	-0.00	-0.01	-0.06	-0.03	0.33	-0.04	-0.01	0.01
+ GEN. GOVERNMENT BALANCE	-0.00	0.00	0.01	0.00	-0.59	-0.02	-0.00	-0.04
+ PRIVATE SAVING	0.01	0.02	0.08	0.03	0.33	0.08	0.02	0.06
= INVESTMENT	0.00	0.01	0.03	0.01	0.07	0.02	0.01	0.02
92								
REAL GDP	0.01	0.01	0.02	0.01	0.04	0.02	0.00	0.01
REAL GNP	0.01	0.01	0.03	0.02	-0.01	0.03	0.00	0.01
REAL ABSORPTION	-0.00	-0.00	-0.01	-0.01	0.39	-0.02	-0.01	0.03
CAPITAL STOCK	0.00	0.00	0.01	0.00	0.01	0.00	0.00	0.00
GDP DEFLATOR	0.02	0.03	0.08	0.06	0.30	0.08	0.04	0.07
ABSORPTION INFLATION (% PT)	0.01	0.01	0.02	0.02	0.10	0.03	0.01	0.00
SHORT-TERM INTEREST RATE (% PT)	0.01	0.02	0.04	0.03	0.16	0.04	0.02	0.03
LONG-TERM INTEREST RATE (% PT)	0.02	0.02	0.03	0.03	0.11	0.04	0.02	0.03
EXCHANGE RATE ($/LOCAL UNIT)*	-0.04	0.00	0.05	0.03	0.26	0.05	0.01	0.00
DEVIATION AS % OF BASELINE GNP								
GOVERNMENT DEBT	0.01	0.00	0.00	0.01	1.48	0.09	0.01	0.12
NET FOREIGN ASSETS	0.01	0.03	0.13	0.07	-0.92	0.12	0.01	-0.02
FOREIGN SAVING**	-0.00	-0.01	-0.04	-0.02	0.27	-0.04	0.00	0.01
+ GEN. GOVERNMENT BALANCE	-0.01	-0.00	-0.01	-0.01	-0.44	-0.04	-0.01	-0.04
+ PRIVATE SAVING	0.01	0.02	0.06	0.03	0.17	0.08	0.02	0.04
= INVESTMENT	0.01	0.01	0.01	0.01	0.00	0.01	0.01	0.01
95								
REAL GDP	0.00	-0.00	0.00	-0.01	-0.07	-0.02	-0.00	-0.01
REAL GNP	-0.00	0.01	0.02	-0.00	-0.17	-0.01	-0.01	-0.01
REAL ABSORPTION	-0.01	-0.01	-0.02	-0.02	0.17	-0.04	-0.01	0.00
CAPITAL STOCK	-0.00	-0.00	0.00	-0.00	-0.02	-0.01	-0.00	-0.00
GDP DEFLATOR	0.05	0.06	0.09	0.09	0.35	0.12	0.06	0.10
ABSORPTION INFLATION (% PT)	0.01	0.01	0.00	0.01	-0.00	0.01	0.01	0.00
SHORT-TERM INTEREST RATE (% PT)	0.02	0.03	0.04	0.04	0.12	0.05	0.03	0.04
LONG-TERM INTEREST RATE (% PT)	0.02	0.02	0.04	0.03	0.11	0.04	0.02	0.03
EXCHANGE RATE ($/LOCAL UNIT)*	-0.03	0.01	0.04	0.03	0.20	0.05	0.00	0.00
DEVIATION AS % OF BASELINE GNP								
GOVERNMENT DEBT	0.02	0.01	0.02	0.03	2.08	0.16	0.04	0.18
NET FOREIGN ASSETS	0.02	0.06	0.21	0.10	-1.46	0.18	-0.01	-0.04
FOREIGN SAVING**	-0.00	-0.01	-0.04	-0.02	0.24	-0.03	0.01	0.01
+ GEN. GOVERNMENT BALANCE	-0.01	-0.00	-0.01	-0.01	-0.24	-0.03	-0.01	-0.02
+ PRIVATE SAVING	0.02	0.03	0.06	0.03	0.02	0.07	0.02	0.03
= INVESTMENT	0.01	0.02	0.02	0.01	0.02	0.02	0.01	0.02

* FOR U.S. IS EFFECTIVE RATE
** EQUALS CURRENT ACCOUNT DEFICIT / BASELINE GDP

TABLE 86: IT FISCAL SHOCK, CONSISTENT EXPECTATIONS

	U.S.	JAPAN	GERMANY	FRANCE	U.K.	ITALY	CANADA	TOTAL G7
90								
REAL GDP	-0.01	-0.01	-0.07	-0.06	-0.00	0.80	-0.01	0.03
REAL GNP	-0.01	-0.01	-0.07	-0.06	-0.00	0.81	-0.01	0.03
REAL ABSORPTION	-0.01	-0.00	-0.03	-0.03	-0.01	1.22	-0.01	0.07
CAPITAL STOCK	-0.00	-0.00	-0.00	-0.00	-0.00	0.01	-0.00	0.00
GDP DEFLATOR	0.00	0.01	-0.02	-0.00	-0.01	0.16	0.01	0.02
ABSORPTION INFLATION (% PT)	0.01	0.01	0.02	0.01	0.03	-0.05	0.01	0.00
SHORT-TERM INTEREST RATE (% PT)	-0.01	-0.00	-0.04	-0.03	-0.01	0.43	-0.00	0.02
LONG-TERM INTEREST RATE (% PT)	0.01	0.01	0.01	0.01	0.02	0.15	0.01	0.02
EXCHANGE RATE ($/LOCAL UNIT)*	-0.04	0.00	0.01	0.00	0.07	1.03	0.00	0.00
DEVIATION AS % OF BASELINE GNP								
GOVERNMENT DEBT	0.00	0.00	0.01	0.01	0.01	0.81	0.00	0.13
NET FOREIGN ASSETS	-0.01	-0.01	-0.07	-0.05	-0.03	-0.16	-0.01	-0.04
FOREIGN SAVING**	0.01	0.01	0.07	0.05	0.03	0.21	0.01	0.04
+ GEN. GOVERNMENT BALANCE	-0.00	-0.00	-0.01	-0.01	-0.01	-0.81	-0.00	-0.07
+ PRIVATE SAVING	-0.01	-0.00	-0.06	-0.04	-0.02	0.61	-0.00	0.05
= INVESTMENT	0.00	0.00	-0.00	-0.00	0.00	0.01	-0.00	0.02
92								
REAL GDP	0.00	0.01	0.00	0.00	0.01	-0.08	-0.00	-0.00
REAL GNP	-0.00	0.01	0.00	0.00	0.00	-0.12	-0.00	-0.01
REAL ABSORPTION	-0.00	-0.00	-0.00	-0.00	-0.01	0.30	-0.01	0.02
CAPITAL STOCK	-0.00	-0.00	0.00	-0.00	-0.00	-0.07	-0.00	-0.00
GDP DEFLATOR	0.01	0.01	0.01	0.01	0.03	0.42	0.02	0.06
ABSORPTION INFLATION (% PT)	0.01	0.00	-0.00	0.00	0.00	0.10	0.00	0.00
SHORT-TERM INTEREST RATE (% PT)	0.01	0.01	0.01	0.00	0.02	0.15	0.01	0.02
LONG-TERM INTEREST RATE (% PT)	0.01	0.01	0.01	0.01	0.02	0.10	0.01	0.02
EXCHANGE RATE ($/LOCAL UNIT)*	-0.02	0.00	0.03	0.02	0.07	0.64	0.00	0.00
DEVIATION AS % OF BASELINE GNP								
GOVERNMENT DEBT	0.00	0.00	0.01	0.00	0.00	1.91	0.01	0.18
NET FOREIGN ASSETS	-0.01	-0.00	-0.05	-0.04	-0.01	-0.66	-0.01	-0.06
FOREIGN SAVING**	0.00	-0.00	0.00	0.00	-0.01	0.24	0.00	0.02
+ GEN. GOVERNMENT BALANCE	-0.00	-0.00	-0.00	-0.00	-0.00	-0.51	-0.00	-0.04
+ PRIVATE SAVING	0.00	0.01	0.00	0.00	0.01	0.24	0.00	0.03
= INVESTMENT	0.00	0.00	0.00	0.00	0.00	-0.03	0.00	0.01
95								
REAL GDP	-0.00	-0.00	0.00	-0.00	-0.00	-0.20	-0.00	-0.02
REAL GNP	-0.01	0.00	0.00	-0.00	-0.00	-0.28	-0.01	-0.02
REAL ABSORPTION	-0.01	-0.01	-0.01	-0.01	-0.01	0.12	-0.01	0.00
CAPITAL STOCK	-0.00	-0.00	-0.00	-0.00	-0.01	-0.13	-0.01	-0.01
GDP DEFLATOR	0.02	0.01	0.02	0.02	0.04	0.40	0.02	0.06
ABSORPTION INFLATION (% PT)	0.00	0.00	-0.00	0.00	-0.00	-0.04	-0.00	-0.00
SHORT-TERM INTEREST RATE (% PT)	0.01	0.01	0.01	0.01	0.02	0.09	0.01	0.01
LONG-TERM INTEREST RATE (% PT)	0.01	0.01	0.01	0.01	0.01	0.08	0.01	0.01
EXCHANGE RATE ($/LOCAL UNIT)*	-0.02	0.00	0.02	0.01	0.06	0.48	-0.00	0.00
DEVIATION AS % OF BASELINE GNP								
GOVERNMENT DEBT	0.01	0.00	0.01	0.01	0.01	2.49	0.02	0.22
NET FOREIGN ASSETS	-0.01	0.01	-0.02	-0.03	0.01	-1.25	-0.03	-0.09
FOREIGN SAVING**	0.00	-0.00	-0.01	-0.00	-0.01	0.25	0.01	0.02
+ GEN. GOVERNMENT BALANCE	-0.00	-0.00	-0.00	-0.00	-0.00	-0.23	-0.00	-0.02
+ PRIVATE SAVING	0.00	0.01	0.01	0.00	0.01	0.00	0.00	0.02
= INVESTMENT	0.00	0.00	0.00	0.00	0.00	0.02	0.00	0.01

* FOR U.S. IS EFFECTIVE RATE
** EQUALS CURRENT ACCOUNT DEFICIT / BASELINE GDP

TABLE B7: CA FISCAL SHOCK, CONSISTENT EXPECTATIONS

	U.S.	JAPAN	GERMANY	FRANCE	U.K.	ITALY	CANADA	TOTAL G7
90								
REAL GDP	0.06	0.03	0.02	0.02	0.04	0.02	0.31	0.05
REAL GNP	0.06	0.03	0.02	0.02	0.04	0.02	0.33	0.05
REAL ABSORPTION	0.02	0.01	0.01	0.01	0.01	0.01	1.13	0.06
CAPITAL STOCK	0.00	0.00	0.00	0.00	0.00	0.00	0.03	0.00
GDP DEFLATOR	-0.00	0.00	0.01	0.01	0.01	0.00	0.27	0.01
ABSORPTION INFLATION (% PT)	0.02	0.01	0.01	0.01	0.01	0.01	-0.07	0.00
SHORT-TERM INTEREST RATE (% PT)	0.03	0.01	0.01	0.01	0.02	0.01	0.26	0.03
LONG-TERM INTEREST RATE (% PT)	0.03	0.02	0.01	0.02	0.02	0.01	0.17	0.03
EXCHANGE RATE ($/LOCAL UNIT)*	-0.03	-0.03	-0.03	-0.03	-0.02	-0.04	0.53	0.00
DEVIATION AS % OF BASELINE GNP								
GOVERNMENT DEBT	-0.00	-0.00	-0.00	-0.00	-0.00	0.01	0.68	0.03
NET FOREIGN ASSETS	0.03	0.02	0.02	0.01	0.02	0.00	-0.30	-0.00
FOREIGN SAVING**	-0.03	-0.01	-0.01	-0.01	-0.02	-0.01	0.45	0.00
+ GEN. GOVERNMENT BALANCE	0.00	0.00	0.00	0.00	0.00	-0.01	-0.68	-0.03
+ PRIVATE SAVING	0.03	0.02	0.01	0.02	0.02	0.01	0.28	0.04
= INVESTMENT	0.01	0.01	0.01	0.00	0.01	0.00	0.06	0.01
92								
REAL GDP	0.01	0.01	0.00	0.01	-0.00	0.01	0.15	0.01
REAL GNP	0.01	0.01	0.01	0.01	0.00	0.01	0.10	0.01
REAL ABSORPTION	-0.01	-0.01	-0.00	-0.00	-0.01	-0.00	0.54	0.01
CAPITAL STOCK	0.00	0.00	0.00	0.00	-0.00	0.00	0.03	0.00
GDP DEFLATOR	0.05	0.03	0.02	0.03	0.04	0.02	0.28	0.05
ABSORPTION INFLATION (% PT)	0.02	0.01	0.01	0.01	0.01	0.01	0.10	0.00
SHORT-TERM INTEREST RATE (% PT)	0.03	0.01	0.01	0.02	0.02	0.01	0.19	0.03
LONG-TERM INTEREST RATE (% PT)	0.03	0.02	0.01	0.02	0.02	0.02	0.15	0.03
EXCHANGE RATE ($/LOCAL UNIT)*	-0.02	-0.03	-0.03	-0.03	-0.02	-0.03	0.39	0.00
DEVIATION AS % OF BASELINE GNP								
GOVERNMENT DEBT	0.01	0.00	0.00	0.01	0.00	0.02	1.65	0.08
NET FOREIGN ASSETS	0.05	0.03	0.03	0.02	0.03	0.01	-0.84	-0.00
FOREIGN SAVING**	-0.01	-0.01	-0.01	-0.01	-0.01	-0.00	0.24	0.00
+ GEN. GOVERNMENT BALANCE	-0.01	-0.00	-0.00	-0.00	-0.00	-0.01	-0.49	-0.03
+ PRIVATE SAVING	0.03	0.02	0.02	0.01	0.01	0.02	0.24	0.03
= INVESTMENT	0.01	0.01	0.01	0.00	0.00	0.00	-0.00	0.01
95								
REAL GDP	-0.01	0.00	0.00	-0.00	-0.00	0.00	-0.09	-0.01
REAL GNP	-0.01	0.01	0.02	-0.00	-0.00	0.00	-0.18	-0.01
REAL ABSORPTION	-0.02	-0.01	-0.01	-0.01	-0.01	-0.01	0.23	-0.00
CAPITAL STOCK	-0.01	-0.00	0.00	-0.00	-0.00	-0.00	-0.03	-0.00
GDP DEFLATOR	0.09	0.05	0.04	0.05	0.06	0.04	0.42	0.08
ABSORPTION INFLATION (% PT)	0.01	0.01	0.01	0.01	0.01	0.01	0.02	0.00
SHORT-TERM INTEREST RATE (% PT)	0.04	0.02	0.02	0.02	0.02	0.02	0.15	0.03
LONG-TERM INTEREST RATE (% PT)	0.04	0.03	0.02	0.02	0.02	0.02	0.14	0.03
EXCHANGE RATE ($/LOCAL UNIT)*	-0.00	-0.03	-0.05	-0.04	-0.03	-0.04	0.29	0.00
DEVIATION AS % OF BASELINE GNP								
GOVERNMENT DEBT	0.04	0.01	0.01	0.02	0.01	0.06	2.34	0.12
NET FOREIGN ASSETS	0.06	0.06	0.06	0.04	0.04	0.02	-1.40	-0.01
FOREIGN SAVING**	-0.01	-0.02	-0.02	-0.01	-0.00	-0.01	0.25	0.00
+ GEN. GOVERNMENT BALANCE	-0.01	-0.00	-0.00	-0.00	-0.00	-0.01	-0.28	-0.02
+ PRIVATE SAVING	0.03	0.03	0.03	0.02	0.02	0.03	0.04	0.03
= INVESTMENT	0.01	0.02	0.01	0.01	0.01	0.01	0.01	0.01

* FOR U.S. IS EFFECTIVE RATE
** EQUALS CURRENT ACCOUNT DEFICIT / BASELINE GDP

TABLE B11: US FISCAL SHOCK, ADAPTIVE EXPECTATIONS

	U.S.	JAPAN	GERMANY	FRANCE	U.K.	ITALY	CANADA	TOTAL G7
90								
REAL GDP	1.08	0.17	0.15	0.12	0.21	0.10	0.56	0.57
REAL GNP	1.14	0.18	0.16	0.12	0.21	0.10	0.56	0.59
REAL ABSORPTION	1.28	0.05	0.05	0.05	0.08	0.05	0.21	0.60
CAPITAL STOCK	0.07	0.01	0.01	0.01	0.01	0.01	0.04	0.03
GDP DEFLATOR	0.08	0.00	-0.02	0.01	0.01	0.01	-0.03	0.03
ABSORPTION INFLATION (% PT)	0.05	0.07	0.04	0.04	0.03	0.05	0.10	0.00
SHORT-TERM INTEREST RATE (% PT)	0.52	0.08	0.06	0.06	0.10	0.05	0.24	0.27
LONG-TERM INTEREST RATE (% PT)	0.17	0.03	0.02	0.02	0.03	0.02	0.08	0.09
EXCHANGE RATE ($/LOCAL UNIT)*	0.41	-0.59	-0.61	-0.61	-0.56	-0.62	-0.38	0.00
DEVIATION AS % OF BASELINE GNP								
GOVERNMENT DEBT	0.68	-0.01	-0.01	-0.00	-0.02	0.03	-0.00	0.17
NET FOREIGN ASSETS	-0.14	0.16	0.17	0.05	0.13	-0.00	0.10	-0.02
FOREIGN SAVING**	0.14	-0.07	-0.06	-0.05	-0.10	-0.02	-0.21	0.02
+ GEN. GOVERNMENT BALANCE	-0.68	0.01	0.01	0.00	0.02	-0.03	0.00	-0.27
+ PRIVATE SAVING	0.68	0.10	0.08	0.07	0.11	0.07	0.32	0.25
= INVESTMENT	0.14	0.04	0.03	0.03	0.04	0.02	0.11	0.00
92								
REAL GDP	0.82	0.25	0.25	0.22	0.26	0.22	0.51	0.50
REAL GNP	0.80	0.34	0.36	0.23	0.28	0.20	0.44	0.51
REAL ABSORPTION	1.03	0.10	0.13	0.11	0.14	0.11	0.30	0.52
CAPITAL STOCK	0.36	0.07	0.07	0.06	0.08	0.05	0.20	0.18
GDP DEFLATOR	0.64	0.18	0.17	0.19	0.24	0.16	0.42	0.38
ABSORPTION INFLATION (% PT)	0.32	0.13	0.13	0.12	0.15	0.11	0.24	0.00
SHORT-TERM INTEREST RATE (% PT)	0.66	0.20	0.19	0.18	0.23	0.17	0.42	0.40
LONG-TERM INTEREST RATE (% PT)	0.42	0.10	0.10	0.10	0.12	0.09	0.24	0.24
EXCHANGE RATE ($/LOCAL UNIT)*	0.64	-0.96	-0.98	-0.99	-0.90	-1.01	-0.53	0.00
DEVIATION AS % OF BASELINE GNP								
GOVERNMENT DEBT	1.78	-0.03	-0.04	0.01	-0.05	0.20	0.15	0.57
NET FOREIGN ASSETS	-0.49	0.51	0.53	0.18	0.33	0.04	0.20	-0.04
FOREIGN SAVING**	0.20	-0.17	-0.17	-0.08	-0.10	-0.03	-0.05	0.02
+ GEN. GOVERNMENT BALANCE	-0.57	0.01	0.01	-0.01	0.01	-0.11	-0.09	-0.23
+ PRIVATE SAVING	0.81	0.31	0.31	0.21	0.24	0.25	0.50	0.36
= INVESTMENT	0.44	0.16	0.15	0.12	0.16	0.10	0.36	0.15
95								
REAL GDP	-0.01	0.24	0.20	0.20	0.14	0.21	0.15	0.11
REAL GNP	-0.18	0.45	0.45	0.23	0.14	0.19	0.02	0.10
REAL ABSORPTION	0.23	0.07	0.05	0.05	0.02	0.04	-0.05	0.12
CAPITAL STOCK	0.42	0.16	0.15	0.14	0.15	0.14	0.28	0.26
GDP DEFLATOR	1.73	0.74	0.69	0.75	0.85	0.66	1.26	1.16
ABSORPTION INFLATION (% PT)	0.32	0.23	0.21	0.23	0.23	0.21	0.28	0.00
SHORT-TERM INTEREST RATE (% PT)	0.77	0.44	0.40	0.43	0.45	0.39	0.64	0.58
LONG-TERM INTEREST RATE (% PT)	0.64	0.30	0.27	0.29	0.31	0.26	0.48	0.44
EXCHANGE RATE ($/LOCAL UNIT)*	0.86	-1.28	-1.36	-1.32	-1.22	-1.39	-0.62	0.00
DEVIATION AS % OF BASELINE GNP								
GOVERNMENT DEBT	2.98	-0.03	0.02	0.15	-0.01	0.80	0.63	1.09
NET FOREIGN ASSETS	-1.20	1.22	1.33	0.44	0.50	0.14	0.17	-0.08
FOREIGN SAVING**	0.32	-0.30	-0.33	-0.12	-0.08	-0.05	0.00	0.02
+ GEN. GOVERNMENT BALANCE	-0.50	-0.00	-0.03	-0.07	-0.03	-0.28	-0.21	-0.23
+ PRIVATE SAVING	0.43	0.63	0.58	0.39	0.31	0.54	0.55	0.30
= INVESTMENT	0.25	0.32	0.22	0.20	0.20	0.21	0.34	0.09

* FOR U.S. IS EFFECTIVE RATE
** EQUALS CURRENT ACCOUNT DEFICIT / BASELINE GDP

TABLE B11A: US FISCAL SHOCK, ADAPTIVE EXPECTATIONS, DETAILED RESULTS

	90	91	92	93	94	95	96	97	98	99	100
UNITED STATES*											
REAL GDP	1.08	0.94	0.82	0.51	0.24	-0.01	-0.22	-0.38	-0.50	-0.59	-0.65
REAL GNP	1.14	0.95	0.80	0.44	0.12	-0.18	-0.43	-0.64	-0.80	-0.92	-1.02
CAPACITY UTILIZATION RATE	1.08	0.92	0.75	0.39	0.08	-0.18	-0.37	-0.49	-0.55	-0.58	-0.58
REAL DISPOSABLE INCOME	0.84	0.28	-0.14	-0.74	-1.27	-1.78	-2.24	-2.63	-2.97	-3.25	-3.48
REAL ABSORPTION	1.28	1.13	1.03	0.73	0.47	0.23	0.02	-0.14	-0.27	-0.37	-0.46
REAL CONSUMPTION	0.29	-0.14	-0.43	-0.75	-0.97	-1.15	-1.29	-1.41	-1.53	-1.65	-1.77
REAL INVESTMENT	0.78	1.43	1.96	1.35	0.64	-0.18	-0.88	-1.39	-1.71	-1.86	-1.88
REAL GOV'T SPENDING	4.76	4.82	4.88	4.95	5.01	5.07	5.14	5.20	5.27	5.33	5.40
REAL EXPORTS	0.10	-0.13	-0.20	-0.41	-0.57	-0.71	-0.82	-0.89	-0.94	-0.96	-0.96
REAL IMPORTS	1.89	1.54	1.65	1.51	1.46	1.37	1.29	1.19	1.06	0.91	0.75
GDP DEFLATOR	0.08	0.30	0.64	1.02	1.40	1.73	1.99	2.17	2.28	2.31	2.27
ABSORPTION DEFLATOR	0.05	0.26	0.56	0.92	1.27	1.58	1.83	2.02	2.13	2.17	2.14
EXPORT DEFLATOR	0.06	0.05	0.29	0.52	0.77	0.99	1.18	1.33	1.43	1.49	1.51
IMPORT DEFLATOR	-0.38	-0.42	-0.39	-0.26	-0.10	0.09	0.28	0.46	0.63	0.77	0.88
PRICE IN FOREIGN MARKETS	-0.51	-0.54	-0.58	-0.51	-0.41	-0.27	-0.11	0.07	0.24	0.41	0.57
ABSORPTION INFLATION (% PT.)	0.05	0.22	0.31	0.37	0.36	0.32	0.26	0.19	0.11	0.04	-0.03
USER COST OF K (% PT.)	0.12	0.18	0.23	0.26	0.29	0.33	0.37	0.41	0.45	0.49	0.51
TOTAL REAL WEALTH	-0.29	-0.41	-0.47	-0.49	-0.54	-0.63	-0.75	-0.91	-1.08	-1.26	-1.43
HUMAN REAL WEALTH	-0.42	-0.64	-0.77	-0.83	-0.91	-1.01	-1.14	-1.28	-1.44	-1.60	-1.75
NOMINAL MONEY BALANCES	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
SHORT-TERM INT RATE (% PT.)	0.52	0.56	0.66	0.69	0.74	0.77	0.79	0.80	0.79	0.77	0.72
REAL SHORT-TERM RATE (% PT.)	0.51	0.48	0.51	0.48	0.48	0.49	0.52	0.55	0.59	0.61	0.62
LONG-TERM INT RATE (% PT.)	0.17	0.30	0.42	0.51	0.58	0.64	0.69	0.73	0.75	0.76	0.74
REAL LONG-TERM RATE (% PT.)	0.16	0.22	0.27	0.30	0.33	0.37	0.42	0.48	0.54	0.60	0.64
EXCHANGE RATE (=1)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
EXCHANGE RATE (EFFECTIVE)	0.41	0.51	0.64	0.73	0.80	0.86	0.90	0.93	0.94	0.93	0.90
REAL EXCHANGE RATE (EFFECTIVE)	0.58	0.83	1.22	1.54	1.82	2.02	2.12	2.13	2.06	1.92	1.72
REAL COMPETITIVENESS INDEX	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
CURRENT ACCOUNT ($ BILLIONS)	-7.90	-10.05	-12.34	-15.36	-18.96	-23.14	-27.69	-32.53	-37.48	-42.37	-47.05
CURR. ACCT. (LOCAL CURRENCY)	-7.90	-10.05	-12.34	-15.36	-18.96	-23.14	-27.69	-32.53	-37.48	-42.37	-47.05
FISCAL VARIABLES											
TAX RATE (% PT.)	0.12	0.34	0.52	0.70	0.86	1.01	1.15	1.27	1.39	1.48	1.57
TAX REVENUES	1.94	3.24	4.33	5.25	6.09	6.83	7.48	8.03	8.47	8.79	8.99
NOMINAL GOV'T SPENDING	4.33	5.17	5.80	6.52	7.17	7.77	8.28	8.69	9.00	9.21	9.30
DEBT/ACTUAL GDP (% PT.)	0.28	0.81	1.21	1.60	1.93	2.23	2.48	2.69	2.86	2.99	3.09
TARGET DEBT/GDP (% PT.)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
DEFICIT (LOCAL CURRENCY)	37.41	37.02	35.08	35.94	36.27	36.61	36.29	35.23	33.41	30.86	27.58
DEVIATION AS % OF BASELINE GDP											
REAL WEALTH	-3.27	-4.67	-5.29	-5.50	-6.05	-7.01	-8.40	-10.12	-12.02	-13.96	-15.82
GOVERNMENT DEBT	0.65	1.21	1.69	2.11	2.49	2.82	3.10	3.33	3.50	3.62	3.67
CAPITAL STOCK	0.13	0.36	0.67	0.84	0.88	0.78	0.56	0.28	-0.04	-0.35	-0.64
NFA	-0.14	-0.29	-0.47	-0.66	-0.89	-1.13	-1.41	-1.70	-2.01	-2.33	-2.65
TRADE BALANCE	-0.14	-0.12	-0.11	-0.11	-0.11	-0.11	-0.11	-0.11	-0.11	-0.10	-0.09
PRIMARY GOV'T BALANCE	-0.65	-0.47	-0.34	-0.25	-0.16	-0.08	-0.00	0.08	0.15	0.22	0.29
FOREIGN SAVING	0.14	0.16	0.19	0.22	0.26	0.30	0.34	0.37	0.41	0.43	0.45
+ GEN. GOV. BALANCE	-0.65	-0.60	-0.54	-0.52	-0.50	-0.47	-0.44	-0.40	-0.36	-0.32	-0.27
+ INVESTMENT	0.14	0.28	0.42	0.38	0.32	0.23	0.16	0.10	0.06	0.04	0.04
= PRIVATE SAVING	0.65	0.72	0.77	0.68	0.56	0.41	0.26	0.13	0.02	-0.07	-0.15

* % DIFFERENCE SHOCK-MINUS-CONTROL UNLESS OTHERWISE INDICATED

TABLE B12: JA FISCAL SHOCK, ADAPTIVE EXPECTATIONS

	U.S.	JAPAN	GERMANY	FRANCE	U.K.	ITALY	CANADA	TOTAL G7
90								
REAL GDP	0.04	1.01	0.04	0.03	0.06	0.03	0.08	0.21
REAL GNP	0.05	1.00	0.04	0.03	0.05	0.03	0.08	0.22
REAL ABSORPTION	0.01	1.25	0.01	0.01	0.02	0.01	0.03	0.23
CAPITAL STOCK	0.00	0.07	0.00	0.00	0.00	0.00	0.00	0.01
GDP DEFLATOR	-0.00	0.09	-0.00	0.01	0.00	0.01	0.01	0.01
ABSORPTION INFLATION (% PT)	0.02	-0.00	0.02	0.02	0.01	0.02	0.01	0.00
SHORT-TERM INTEREST RATE (% PT)	0.02	0.49	0.02	0.02	0.03	0.02	0.04	0.10
LONG-TERM INTEREST RATE (% PT)	0.01	0.16	0.01	0.01	0.01	0.01	0.01	0.03
EXCHANGE RATE ($/LOCAL UNIT)*	-0.08	0.64	-0.00	-0.00	0.01	-0.00	0.03	0.00
DEVIATION AS % OF BASELINE GNP								
GOVERNMENT DEBT	0.00	0.60	-0.00	-0.00	-0.01	0.01	-0.00	0.17
NET FOREIGN ASSETS	0.01	-0.22	0.01	0.01	0.02	0.00	0.05	-0.02
FOREIGN SAVING**	-0.01	0.12	-0.01	-0.01	-0.02	-0.00	-0.04	0.02
+ GEN. GOVERNMENT BALANCE	-0.00	-0.60	0.00	0.00	0.01	-0.01	0.00	-0.14
+ PRIVATE SAVING	0.02	0.61	0.02	0.02	0.03	0.02	0.05	0.21
= INVESTMENT	0.01	0.13	0.01	0.01	0.01	0.01	0.01	0.08
92								
REAL GDP	0.11	0.75	0.11	0.09	0.12	0.10	0.13	0.22
REAL GNP	0.12	0.71	0.12	0.09	0.12	0.10	0.14	0.22
REAL ABSORPTION	0.04	1.10	0.06	0.04	0.06	0.05	0.07	0.23
CAPITAL STOCK	0.03	0.33	0.03	0.02	0.03	0.02	0.04	0.08
GDP DEFLATOR	0.06	0.59	0.08	0.08	0.09	0.07	0.10	0.13
ABSORPTION INFLATION (% PT)	0.05	0.25	0.06	0.05	0.06	0.05	0.06	0.00
SHORT-TERM INTEREST RATE (% PT)	0.08	0.60	0.08	0.08	0.10	0.08	0.10	0.17
LONG-TERM INTEREST RATE (% PT)	0.04	0.39	0.04	0.04	0.05	0.04	0.05	0.10
EXCHANGE RATE ($/LOCAL UNIT)*	-0.15	1.08	0.01	-0.00	0.04	-0.00	0.05	0.00
DEVIATION AS % OF BASELINE GNP								
GOVERNMENT DEBT	0.01	1.47	-0.00	0.01	-0.02	0.08	0.02	0.40
NET FOREIGN ASSETS	0.06	-0.61	0.07	0.07	0.10	0.04	0.14	-0.04
FOREIGN SAVING**	-0.03	0.18	-0.03	-0.03	-0.04	-0.02	-0.05	0.01
+ GEN. GOVERNMENT BALANCE	-0.01	-0.44	-0.00	-0.00	0.01	-0.05	-0.02	-0.11
+ PRIVATE SAVING	0.09	0.72	0.10	0.08	0.10	0.11	0.14	0.33
= INVESTMENT	0.05	0.46	0.06	0.04	0.06	0.04	0.08	0.23
95								
REAL GDP	0.13	-0.02	0.10	0.11	0.08	0.11	0.11	0.09
REAL GNP	0.13	-0.10	0.14	0.12	0.09	0.12	0.11	0.08
REAL ABSORPTION	0.04	0.45	0.03	0.03	0.02	0.03	0.03	0.10
CAPITAL STOCK	0.07	0.39	0.07	0.06	0.07	0.06	0.08	0.12
GDP DEFLATOR	0.31	1.47	0.33	0.33	0.39	0.31	0.39	0.47
ABSORPTION INFLATION (% PT)	0.11	0.23	0.11	0.11	0.12	0.11	0.12	0.00
SHORT-TERM INTEREST RATE (% PT)	0.20	0.65	0.19	0.20	0.21	0.19	0.23	0.27
LONG-TERM INTEREST RATE (% PT)	0.13	0.57	0.13	0.13	0.14	0.12	0.15	0.20
EXCHANGE RATE ($/LOCAL UNIT)*	-0.22	1.61	-0.00	-0.00	0.05	-0.02	0.08	0.00
DEVIATION AS % OF BASELINE GNP								
GOVERNMENT DEBT	0.10	2.27	0.04	0.07	-0.01	0.37	0.16	0.67
NET FOREIGN ASSETS	0.15	-1.21	0.22	0.19	0.20	0.12	0.25	-0.07
FOREIGN SAVING**	-0.03	0.23	-0.07	-0.05	-0.04	-0.04	-0.04	0.01
+ GEN. GOVERNMENT BALANCE	-0.04	-0.34	-0.02	-0.03	-0.01	-0.13	-0.07	-0.12
+ PRIVATE SAVING	0.18	0.47	0.20	0.18	0.15	0.27	0.24	0.38
= INVESTMENT	0.10	0.36	0.11	0.10	0.10	0.10	0.14	0.28

* FOR U.S. IS EFFECTIVE RATE
** EQUALS CURRENT ACCOUNT DEFICIT / BASELINE GDP

TABLE B13: GR FISCAL SHOCK, ADAPTIVE EXPECTATIONS

	U.S.	JAPAN	GERMANY	FRANCE	U.K.	ITALY	CANADA	TOTAL G7
90								
REAL GDP	0.01	0.02	0.97	0.04	0.13	0.06	0.02	0.14
REAL GNP	0.01	0.02	0.95	0.04	0.13	0.06	0.02	0.14
REAL ABSORPTION	0.00	0.01	1.37	0.01	0.04	0.03	0.01	0.16
CAPITAL STOCK	0.00	0.00	0.06	0.00	0.01	0.00	0.00	0.01
GDP DEFLATOR	-0.00	0.01	0.20	0.02	-0.01	0.02	0.01	0.03
ABSORPTION INFLATION (% PT)	0.02	0.02	-0.00	0.03	0.05	0.04	0.02	0.00
SHORT-TERM INTEREST RATE (% PT)	0.00	0.02	0.53	0.02	0.05	0.03	0.01	0.08
LONG-TERM INTEREST RATE (% PT)	0.00	0.01	0.17	0.01	0.02	0.01	0.00	0.03
EXCHANGE RATE ($/LOCAL UNIT)*	-0.10	0.02	0.70	0.02	0.07	0.04	0.01	0.00
DEVIATION AS % OF BASELINE GNP								
GOVERNMENT DEBT	0.00	-0.00	0.56	0.00	-0.01	0.02	0.00	0.08
NET FOREIGN ASSETS	-0.01	0.01	-0.28	0.01	0.02	0.01	0.01	-0.01
FOREIGN SAVING**	0.01	-0.01	0.16	-0.01	-0.03	-0.01	-0.00	0.01
+ GEN. GOVERNMENT BALANCE	-0.00	0.00	-0.56	-0.00	0.01	-0.02	-0.00	-0.06
+ PRIVATE SAVING	-0.00	0.02	0.57	0.02	0.05	0.04	0.01	0.09
= INVESTMENT	0.00	0.01	0.16	0.01	0.03	0.02	0.01	0.04
92								
REAL GDP	0.07	0.08	0.49	0.15	0.18	0.18	0.06	0.14
REAL GNP	0.07	0.08	0.44	0.15	0.18	0.18	0.06	0.14
REAL ABSORPTION	0.02	0.03	1.07	0.07	0.10	0.09	0.03	0.15
CAPITAL STOCK	0.01	0.02	0.26	0.03	0.06	0.04	0.01	0.06
GDP DEFLATOR	0.05	0.07	0.50	0.10	0.19	0.13	0.07	0.13
ABSORPTION INFLATION (% PT)	0.04	0.05	0.17	0.07	0.12	0.09	0.05	0.00
SHORT-TERM INTEREST RATE (% PT)	0.05	0.07	0.45	0.11	0.17	0.14	0.06	0.13
LONG-TERM INTEREST RATE (% PT)	0.02	0.03	0.30	0.05	0.09	0.07	0.03	0.07
EXCHANGE RATE ($/LOCAL UNIT)*	-0.18	0.03	0.87	0.10	0.22	0.15	0.02	0.00
DEVIATION AS % OF BASELINE GNP								
GOVERNMENT DEBT	0.01	-0.00	1.45	0.00	-0.02	0.16	0.02	0.20
NET FOREIGN ASSETS	0.01	0.05	-1.02	0.11	0.10	0.10	0.01	-0.04
FOREIGN SAVING**	-0.01	-0.03	0.35	-0.06	-0.03	-0.05	0.00	0.01
+ GEN. GOVERNMENT BALANCE	-0.01	0.00	-0.44	-0.01	0.00	-0.09	-0.02	-0.06
+ PRIVATE SAVING	0.05	0.08	0.45	0.13	0.15	0.22	0.06	0.15
= INVESTMENT	0.03	0.05	0.37	0.07	0.13	0.08	0.05	0.11
95								
REAL GDP	0.07	0.06	-0.17	0.07	-0.07	0.02	0.03	0.02
REAL GNP	0.06	0.08	-0.29	0.08	-0.07	0.04	0.02	0.01
REAL ABSORPTION	0.02	0.01	0.23	0.01	-0.08	-0.04	0.00	0.03
CAPITAL STOCK	0.04	0.05	0.20	0.08	0.07	0.09	0.04	0.07
GDP DEFLATOR	0.23	0.26	0.76	0.39	0.54	0.44	0.28	0.36
ABSORPTION INFLATION (% PT)	0.07	0.07	0.06	0.10	0.09	0.10	0.08	0.00
SHORT-TERM INTEREST RATE (% PT)	0.13	0.14	0.26	0.21	0.21	0.21	0.14	0.17
LONG-TERM INTEREST RATE (% PT)	0.09	0.10	0.30	0.15	0.17	0.16	0.10	0.13
EXCHANGE RATE ($/LOCAL UNIT)*	-0.22	0.04	0.87	0.20	0.30	0.25	0.03	0.00
DEVIATION AS % OF BASELINE GNP								
GOVERNMENT DEBT	0.08	0.01	2.25	0.08	0.04	0.53	0.13	0.36
NET FOREIGN ASSETS	0.03	0.16	-1.80	0.24	0.08	0.22	-0.06	-0.07
FOREIGN SAVING**	-0.01	-0.04	0.31	-0.05	0.01	-0.04	0.04	0.01
+ GEN. GOVERNMENT BALANCE	-0.03	-0.01	-0.32	-0.04	-0.03	-0.15	-0.05	-0.07
+ PRIVATE SAVING	0.11	0.16	-0.02	0.19	0.09	0.30	0.10	0.16
= INVESTMENT	0.07	0.11	-0.03	0.10	0.07	0.11	0.09	0.10

* FOR U.S. IS EFFECTIVE RATE
** EQUALS CURRENT ACCOUNT DEFICIT / BASELINE GDP

TABLE B14: FR FISCAL SHOCK, ADAPTIVE EXPECTATIONS

	U.S.	JAPAN	GERMANY	FRANCE	U.K.	ITALY	CANADA	TOTAL G7
90								
REAL GDP	0.02	0.02	0.07	0.86	0.08	0.05	0.03	0.11
REAL GNP	0.02	0.02	0.07	0.86	0.07	0.05	0.03	0.11
REAL ABSORPTION	0.00	0.01	0.03	1.24	0.03	0.02	0.01	0.13
CAPITAL STOCK	0.00	0.00	0.00	0.06	0.01	0.00	0.00	0.01
GDP DEFLATOR	-0.00	0.01	0.01	0.09	0.00	0.01	0.00	0.01
ABSORPTION INFLATION (% PT)	0.01	0.01	0.01	-0.01	0.02	0.02	0.01	0.00
SHORT-TERM INTEREST RATE (% PT)	0.01	0.01	0.03	0.43	0.04	0.02	0.02	0.06
LONG-TERM INTEREST RATE (% PT)	0.00	0.00	0.01	0.14	0.01	0.01	0.01	0.02
EXCHANGE RATE ($/LOCAL UNIT)*	-0.07	0.01	0.04	0.57	0.04	0.02	0.01	0.00
DEVIATION AS % OF BASELINE GNP								
GOVERNMENT DEBT	0.00	-0.00	-0.01	0.64	-0.01	0.01	-0.00	0.06
NET FOREIGN ASSETS	0.00	0.01	0.03	-0.28	0.03	0.01	0.02	-0.01
FOREIGN SAVING**	-0.00	-0.01	-0.03	0.28	-0.03	-0.01	-0.01	0.01
+ GEN. GOVERNMENT BALANCE	-0.00	0.00	0.01	-0.64	0.01	-0.01	0.00	-0.05
+ PRIVATE SAVING	0.01	0.02	0.04	0.49	0.04	0.03	0.02	0.06
= INVESTMENT	0.00	0.01	0.01	0.13	0.02	0.01	0.01	0.03
92								
REAL GDP	0.05	0.05	0.11	0.52	0.11	0.10	0.06	0.11
REAL GNP	0.05	0.06	0.12	0.47	0.11	0.11	0.06	0.11
REAL ABSORPTION	0.02	0.02	0.06	0.98	0.06	0.05	0.03	0.12
CAPITAL STOCK	0.01	0.01	0.03	0.26	0.03	0.02	0.02	0.04
GDP DEFLATOR	0.03	0.05	0.09	0.44	0.10	0.07	0.05	0.10
ABSORPTION INFLATION (% PT)	0.03	0.03	0.06	0.18	0.07	0.05	0.04	0.00
SHORT-TERM INTEREST RATE (% PT)	0.04	0.04	0.09	0.43	0.09	0.08	0.05	0.09
LONG-TERM INTEREST RATE (% PT)	0.02	0.02	0.05	0.29	0.05	0.04	0.03	0.05
EXCHANGE RATE ($/LOCAL UNIT)*	-0.12	0.01	0.10	0.85	0.10	0.07	0.03	0.00
DEVIATION AS % OF BASELINE GNP								
GOVERNMENT DEBT	0.01	-0.00	-0.01	1.59	-0.02	0.09	0.02	0.16
NET FOREIGN ASSETS	0.02	0.04	0.09	-0.91	0.08	0.06	0.04	-0.03
FOREIGN SAVING**	-0.01	-0.02	-0.05	0.36	-0.03	-0.03	-0.01	0.01
+ GEN. GOVERNMENT BALANCE	-0.01	0.00	-0.00	-0.48	0.00	-0.05	-0.01	-0.05
+ PRIVATE SAVING	0.04	0.05	0.11	0.48	0.09	0.13	0.06	0.11
= INVESTMENT	0.02	0.03	0.06	0.35	0.07	0.05	0.04	0.08
95								
REAL GDP	0.05	0.05	0.03	-0.25	0.00	0.05	0.03	0.02
REAL GNP	0.05	0.07	0.05	-0.37	0.01	0.06	0.02	0.01
REAL ABSORPTION	0.01	0.01	-0.01	0.17	-0.02	-0.00	0.00	0.02
CAPITAL STOCK	0.03	0.03	0.06	0.22	0.05	0.06	0.03	0.06
GDP DEFLATOR	0.16	0.18	0.28	0.87	0.33	0.27	0.22	0.29
ABSORPTION INFLATION (% PT)	0.05	0.05	0.07	0.09	0.07	0.07	0.06	0.00
SHORT-TERM INTEREST RATE (% PT)	0.10	0.10	0.14	0.28	0.15	0.15	0.11	0.13
LONG-TERM INTEREST RATE (% PT)	0.06	0.07	0.11	0.31	0.11	0.10	0.08	0.10
EXCHANGE RATE ($/LOCAL UNIT)*	-0.16	0.02	0.15	0.96	0.17	0.14	0.04	0.00
DEVIATION AS % OF BASELINE GNP								
GOVERNMENT DEBT	0.06	0.01	0.04	2.45	0.01	0.33	0.09	0.28
NET FOREIGN ASSETS	0.04	0.12	0.20	-1.79	0.11	0.15	0.03	-0.05
FOREIGN SAVING**	-0.01	-0.03	-0.05	0.37	-0.01	-0.03	0.01	0.01
+ GEN. GOVERNMENT BALANCE	-0.02	-0.00	-0.02	-0.35	-0.02	-0.10	-0.04	-0.05
+ PRIVATE SAVING	0.08	0.11	0.15	-0.03	0.09	0.21	0.09	0.12
= INVESTMENT	0.05	0.08	0.07	-0.01	0.06	0.08	0.07	0.08

* FOR U.S. IS EFFECTIVE RATE
** EQUALS CURRENT ACCOUNT DEFICIT / BASELINE GDP

TABLE B15: UK FISCAL SHOCK, ADAPTIVE EXPECTATIONS

	U.S.	JAPAN	GERMANY	FRANCE	U.K.	ITALY	CANADA	TOTAL G7
90								
REAL GDP	0.01	0.02	0.11	0.04	0.62	0.10	0.02	0.08
REAL GNP	0.01	0.02	0.11	0.04	0.61	0.10	0.02	0.08
REAL ABSORPTION	0.00	0.01	0.05	0.02	1.14	0.05	0.01	0.10
CAPITAL STOCK	0.00	0.00	0.01	0.00	0.04	0.01	0.00	0.01
GDP DEFLATOR	-0.00	0.01	0.01	0.01	0.18	0.01	0.00	0.02
ABSORPTION INFLATION (% PT)	0.01	0.01	0.02	0.01	-0.03	0.02	0.01	0.00
SHORT-TERM INTEREST RATE (% PT)	0.00	0.01	0.05	0.02	0.36	0.05	0.01	0.05
LONG-TERM INTEREST RATE (% PT)	0.00	0.00	0.02	0.01	0.12	0.02	0.00	0.02
EXCHANGE RATE ($/LOCAL UNIT)*	-0.05	0.01	0.06	0.02	0.47	0.06	0.01	0.00
DEVIATION AS % OF BASELINE GNP								
GOVERNMENT DEBT	0.00	-0.00	-0.01	-0.00	0.58	0.02	0.00	0.05
NET FOREIGN ASSETS	-0.00	0.01	0.04	0.02	-0.37	0.04	0.01	-0.01
FOREIGN SAVING**	0.00	-0.01	-0.05	-0.02	0.34	-0.04	-0.01	0.01
+ GEN. GOVERNMENT BALANCE	-0.00	0.00	0.01	0.00	-0.58	-0.02	-0.00	-0.04
+ PRIVATE SAVING	0.00	0.01	0.07	0.03	0.34	0.08	0.01	0.05
= INVESTMENT	0.00	0.01	0.02	0.01	0.09	0.02	0.01	0.02
92								
REAL GDP	0.04	0.04	0.12	0.08	0.27	0.12	0.04	0.07
REAL GNP	0.04	0.04	0.12	0.08	0.21	0.13	0.04	0.07
REAL ABSORPTION	0.01	0.02	0.07	0.04	0.82	0.06	0.02	0.09
CAPITAL STOCK	0.01	0.01	0.04	0.02	0.17	0.04	0.01	0.03
GDP DEFLATOR	0.03	0.04	0.10	0.07	0.29	0.09	0.04	0.07
ABSORPTION INFLATION (% PT)	0.02	0.02	0.05	0.04	0.09	0.05	0.03	0.00
SHORT-TERM INTEREST RATE (% PT)	0.03	0.04	0.10	0.07	0.25	0.10	0.04	0.07
LONG-TERM INTEREST RATE (% PT)	0.01	0.02	0.06	0.04	0.19	0.06	0.02	0.04
EXCHANGE RATE ($/LOCAL UNIT)*	-0.09	0.01	0.14	0.07	0.53	0.13	0.01	0.00
DEVIATION AS % OF BASELINE GNP								
GOVERNMENT DEBT	0.01	-0.00	-0.01	0.00	1.41	0.12	0.01	0.13
NET FOREIGN ASSETS	0.01	0.03	0.14	0.08	-1.16	0.14	0.01	-0.03
FOREIGN SAVING**	-0.01	-0.02	-0.06	-0.03	0.42	-0.05	-0.00	0.01
+ GEN. GOVERNMENT BALANCE	-0.01	0.00	-0.00	-0.00	-0.41	-0.06	-0.01	-0.04
+ PRIVATE SAVING	0.03	0.04	0.14	0.08	0.19	0.18	0.04	0.08
= INVESTMENT	0.02	0.03	0.08	0.04	0.21	0.06	0.03	0.06
95								
REAL GDP	0.03	0.02	-0.03	0.01	-0.10	-0.03	0.01	0.00
REAL GNP	0.02	0.04	-0.01	0.02	-0.24	-0.02	0.00	-0.00
REAL ABSORPTION	0.00	0.00	-0.05	-0.01	0.29	-0.06	-0.00	0.02
CAPITAL STOCK	0.02	0.02	0.05	0.04	0.13	0.05	0.02	0.04
GDP DEFLATOR	0.12	0.13	0.24	0.21	0.43	0.26	0.15	0.19
ABSORPTION INFLATION (% PT)	0.03	0.03	0.03	0.04	0.03	0.04	0.04	0.00
SHORT-TERM INTEREST RATE (% PT)	0.07	0.07	0.09	0.10	0.15	0.10	0.07	0.08
LONG-TERM INTEREST RATE (% PT)	0.04	0.05	0.09	0.08	0.18	0.09	0.05	0.07
EXCHANGE RATE ($/LOCAL UNIT)*	-0.10	0.02	0.15	0.10	0.54	0.16	0.02	0.00
DEVIATION AS % OF BASELINE GNP								
GOVERNMENT DEBT	0.04	0.01	0.04	0.05	2.06	0.31	0.07	0.21
NET FOREIGN ASSETS	0.03	0.09	0.26	0.14	-2.05	0.23	-0.01	-0.06
FOREIGN SAVING**	-0.00	-0.02	-0.05	-0.02	0.36	-0.04	0.01	0.01
+ GEN. GOVERNMENT BALANCE	-0.02	-0.00	-0.02	-0.02	-0.26	-0.07	-0.02	-0.04
+ PRIVATE SAVING	0.05	0.08	0.10	0.08	-0.13	0.15	0.05	0.08
= INVESTMENT	0.03	0.05	0.03	0.04	-0.03	0.04	0.04	0.05

* FOR U.S. IS EFFECTIVE RATE
** EQUALS CURRENT ACCOUNT DEFICIT / BASELINE GDP

TABLE B16: IT FISCAL SHOCK, ADAPTIVE EXPECTATIONS

	U.S.	JAPAN	GERMANY	FRANCE	U.K.	ITALY	CANADA	TOTAL G7
90								
REAL GDP	-0.00	-0.00	-0.02	-0.03	0.04	0.97	-0.00	0.06
REAL GNP	-0.00	-0.00	-0.02	-0.03	0.04	0.97	-0.00	0.06
REAL ABSORPTION	-0.00	-0.00	-0.01	-0.01	0.01	1.36	-0.00	0.09
CAPITAL STOCK	-0.00	-0.00	-0.00	-0.00	0.00	0.06	-0.00	0.00
GDP DEFLATOR	0.00	0.01	-0.01	0.00	-0.01	0.11	0.00	0.01
ABSORPTION INFLATION (% PT)	0.01	0.01	0.01	0.01	0.02	-0.04	0.00	0.00
SHORT-TERM INTEREST RATE (% PT)	-0.00	0.00	-0.01	-0.01	0.01	0.49	-0.00	0.03
LONG-TERM INTEREST RATE (% PT)	-0.00	0.00	-0.00	-0.00	0.00	0.16	-0.00	0.01
EXCHANGE RATE ($/LOCAL UNIT)*	-0.03	0.00	-0.01	-0.01	0.02	0.65	0.00	0.00
DEVIATION AS % OF BASELINE GNP								
GOVERNMENT DEBT	0.00	0.00	0.01	0.00	-0.00	0.83	0.00	0.10
NET FOREIGN ASSETS	-0.01	-0.00	-0.02	-0.02	-0.00	-0.20	-0.00	-0.02
FOREIGN SAVING**	0.01	0.00	0.03	0.02	-0.00	0.23	0.00	0.02
+ GEN. GOVERNMENT BALANCE	-0.00	-0.00	-0.01	-0.00	0.00	-0.83	-0.00	-0.06
+ PRIVATE SAVING	-0.01	-0.00	-0.02	-0.02	0.01	0.71	-0.00	0.06
= INVESTMENT	0.00	0.00	-0.00	-0.00	0.01	0.11	0.00	0.02
92								
REAL GDP	-0.01	-0.00	-0.03	-0.03	-0.00	0.31	-0.01	0.01
REAL GNP	-0.01	-0.00	-0.03	-0.03	-0.00	0.28	-0.01	0.01
REAL ABSORPTION	-0.00	-0.00	-0.01	-0.01	0.01	0.86	-0.00	0.05
CAPITAL STOCK	-0.00	-0.00	-0.00	-0.01	0.01	0.25	-0.00	0.01
GDP DEFLATOR	0.00	0.00	0.01	-0.00	0.04	0.43	0.01	0.05
ABSORPTION INFLATION (% PT)	-0.00	-0.00	-0.01	-0.01	-0.00	0.11	-0.00	0.00
SHORT-TERM INTEREST RATE (% PT)	-0.00	-0.00	-0.01	-0.01	0.02	0.34	-0.00	0.02
LONG-TERM INTEREST RATE (% PT)	0.00	0.00	-0.00	-0.01	0.01	0.26	-0.00	0.02
EXCHANGE RATE ($/LOCAL UNIT)*	-0.01	0.00	-0.01	-0.02	0.04	0.79	-0.00	0.00
DEVIATION AS % OF BASELINE GNP								
GOVERNMENT DEBT	0.00	0.00	0.00	0.00	-0.00	2.10	0.00	0.20
NET FOREIGN ASSETS	-0.01	-0.00	-0.02	-0.03	0.02	-0.79	-0.01	-0.06
FOREIGN SAVING**	0.00	0.00	0.01	0.01	-0.01	0.33	0.00	0.03
+ GEN. GOVERNMENT BALANCE	-0.00	-0.00	-0.00	-0.00	-0.00	-0.62	-0.00	-0.05
+ PRIVATE SAVING	-0.00	-0.00	-0.01	-0.02	0.02	0.53	-0.00	0.05
= INVESTMENT	-0.00	-0.00	-0.01	-0.01	0.01	0.25	-0.00	0.03
95								
REAL GDP	-0.02	-0.02	-0.04	-0.04	-0.04	-0.43	-0.02	-0.05
REAL GNP	-0.02	-0.02	-0.04	-0.04	-0.04	-0.53	-0.02	-0.06
REAL ABSORPTION	-0.01	-0.01	-0.02	-0.02	-0.03	0.05	-0.01	-0.01
CAPITAL STOCK	-0.01	-0.01	-0.02	-0.02	-0.01	0.09	-0.01	-0.00
GDP DEFLATOR	-0.01	-0.02	-0.05	-0.06	-0.02	0.51	-0.02	0.03
ABSORPTION INFLATION (% PT)	-0.01	-0.01	-0.03	-0.03	-0.03	-0.04	-0.02	-0.00
SHORT-TERM INTEREST RATE (% PT)	-0.02	-0.02	-0.04	-0.05	-0.03	0.04	-0.02	-0.02
LONG-TERM INTEREST RATE (% PT)	-0.01	-0.01	-0.03	-0.03	-0.01	0.15	-0.01	-0.00
EXCHANGE RATE ($/LOCAL UNIT)*	0.04	-0.00	-0.06	-0.07	0.00	0.68	-0.01	0.00
DEVIATION AS % OF BASELINE GNP								
GOVERNMENT DEBT	-0.00	0.00	-0.00	-0.01	0.00	2.73	-0.01	0.23
NET FOREIGN ASSETS	-0.02	-0.01	-0.03	-0.08	0.04	-1.62	-0.02	-0.13
FOREIGN SAVING**	0.01	0.01	0.01	0.02	-0.01	0.34	0.00	0.03
+ GEN. GOVERNMENT BALANCE	0.00	-0.00	0.00	0.01	-0.00	-0.22	0.01	-0.02
+ PRIVATE SAVING	-0.02	-0.02	-0.05	-0.05	-0.02	-0.24	-0.02	-0.03
= INVESTMENT	-0.01	-0.01	-0.03	-0.02	-0.03	-0.12	-0.01	-0.02

* FOR U.S. IS EFFECTIVE RATE
** EQUALS CURRENT ACCOUNT DEFICIT / BASELINE GDP

TABLE B17: CA FISCAL SHOCK, ADAPTIVE EXPECTATIONS

	U.S.	JAPAN	GERMANY	FRANCE	U.K.	ITALY	CANADA	TOTAL G7
90								
REAL GDP	0.06	0.02	0.02	0.02	0.03	0.01	0.35	0.05
REAL GNP	0.06	0.02	0.02	0.02	0.03	0.01	0.37	0.05
REAL ABSORPTION	0.02	0.01	0.01	0.01	0.01	0.01	1.11	0.06
CAPITAL STOCK	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.00
GDP DEFLATOR	-0.00	0.00	0.00	0.00	0.00	0.00	0.24	0.01
ABSORPTION INFLATION (% PT)	0.01	0.01	0.00	0.01	0.00	0.01	-0.04	0.00
SHORT-TERM INTEREST RATE (% PT)	0.02	0.01	0.01	0.01	0.02	0.01	0.27	0.03
LONG-TERM INTEREST RATE (% PT)	0.01	0.00	0.00	0.00	0.00	0.00	0.09	0.01
EXCHANGE RATE ($/LOCAL UNIT)*	-0.02	-0.02	-0.02	-0.02	-0.01	-0.02	0.32	0.00
DEVIATION AS % OF BASELINE GNP								
GOVERNMENT DEBT	-0.00	-0.00	-0.00	-0.00	-0.00	0.00	0.68	0.03
NET FOREIGN ASSETS	0.02	0.01	0.01	0.01	0.02	0.00	-0.37	-0.00
FOREIGN SAVING**	-0.02	-0.01	-0.01	-0.01	-0.01	-0.00	0.46	0.00
+ GEN. GOVERNMENT BALANCE	0.00	0.00	0.00	0.00	0.00	-0.00	-0.68	-0.03
+ PRIVATE SAVING	0.03	0.01	0.01	0.01	0.02	0.01	0.27	0.03
= INVESTMENT	0.01	0.01	0.00	0.00	0.01	0.00	0.04	0.01
92								
REAL GDP	0.05	0.03	0.03	0.03	0.03	0.03	0.33	0.05
REAL GNP	0.06	0.03	0.03	0.03	0.03	0.03	0.29	0.05
REAL ABSORPTION	0.02	0.01	0.02	0.01	0.02	0.01	0.92	0.05
CAPITAL STOCK	0.02	0.01	0.01	0.01	0.01	0.01	0.13	0.02
GDP DEFLATOR	0.04	0.03	0.02	0.03	0.03	0.02	0.29	0.04
ABSORPTION INFLATION (% PT)	0.03	0.02	0.02	0.02	0.02	0.01	0.05	0.00
SHORT-TERM INTEREST RATE (% PT)	0.04	0.02	0.02	0.03	0.03	0.02	0.28	0.04
LONG-TERM INTEREST RATE (% PT)	0.03	0.01	0.01	0.01	0.02	0.01	0.20	0.03
EXCHANGE RATE ($/LOCAL UNIT)*	-0.03	-0.04	-0.04	-0.04	-0.03	-0.04	0.52	0.00
DEVIATION AS % OF BASELINE GNP								
GOVERNMENT DEBT	0.01	-0.00	-0.00	0.00	-0.01	0.03	1.62	0.07
NET FOREIGN ASSETS	0.06	0.04	0.03	0.03	0.03	0.01	-0.97	-0.01
FOREIGN SAVING**	-0.02	-0.01	-0.01	-0.01	-0.01	-0.01	0.36	0.00
+ GEN. GOVERNMENT BALANCE	-0.01	0.00	-0.00	-0.00	0.00	-0.01	-0.48	-0.02
+ PRIVATE SAVING	0.05	0.03	0.03	0.03	0.03	0.03	0.28	0.05
= INVESTMENT	0.03	0.02	0.02	0.02	0.02	0.01	0.17	0.03
95								
REAL GDP	0.01	0.02	0.02	0.02	0.01	0.02	-0.04	0.01
REAL GNP	0.01	0.04	0.03	0.02	0.01	0.02	-0.16	0.01
REAL ABSORPTION	-0.01	0.00	0.00	0.00	-0.00	0.00	0.41	0.01
CAPITAL STOCK	0.03	0.02	0.02	0.02	0.02	0.02	0.15	0.03
GDP DEFLATOR	0.14	0.09	0.09	0.10	0.11	0.08	0.42	0.12
ABSORPTION INFLATION (% PT)	0.03	0.03	0.02	0.03	0.03	0.02	0.04	0.00
SHORT-TERM INTEREST RATE (% PT)	0.07	0.05	0.05	0.05	0.05	0.05	0.17	0.06
LONG-TERM INTEREST RATE (% PT)	0.05	0.03	0.03	0.04	0.04	0.03	0.20	0.05
EXCHANGE RATE ($/LOCAL UNIT)*	-0.02	-0.06	-0.07	-0.06	-0.05	-0.07	0.58	0.00
DEVIATION AS % OF BASELINE GNP								
GOVERNMENT DEBT	0.05	0.00	0.01	0.02	0.00	0.10	2.34	0.13
NET FOREIGN ASSETS	0.08	0.09	0.09	0.05	0.04	0.03	-1.76	-0.01
FOREIGN SAVING**	-0.01	-0.02	-0.02	-0.01	-0.00	-0.01	0.33	0.00
+ GEN. GOVERNMENT BALANCE	-0.02	-0.00	-0.01	-0.01	-0.00	-0.03	-0.29	-0.02
+ PRIVATE SAVING	0.05	0.06	0.05	0.04	0.03	0.06	-0.03	0.05
= INVESTMENT	0.03	0.04	0.02	0.02	0.02	0.02	0.01	0.03

* FOR U.S. IS EFFECTIVE RATE
** EQUALS CURRENT ACCOUNT DEFICIT / BASELINE GDP

TABLE B21: US MONEY SUPPLY SHOCK: CONSISTENT EXPECTATIONS

	U.S.	JAPAN	GERMANY	FRANCE	U.K.	ITALY	CANADA	TOTAL G7
90								
REAL GDP	0.83	-0.08	-0.35	-0.10	-0.27	-0.16	-0.63	0.24
REAL GNP	0.88	-0.15	-0.44	-0.10	-0.30	-0.14	-0.49	0.23
REAL ABSORPTION	0.67	-0.02	-0.20	-0.02	-0.10	-0.08	-0.10	0.25
CAPITAL STOCK	0.22	-0.03	-0.07	-0.02	-0.02	-0.02	-0.09	0.06
GDP DEFLATOR	0.20	-0.09	0.16	0.00	-0.12	-0.09	0.36	0.08
ABSORPTION INFLATION (% PT)	0.87	-0.31	-0.18	-0.18	-0.18	-0.20	-0.90	0.00
SHORT-TERM INTEREST RATE (% PT)	-1.75	-0.08	-0.08	-0.04	-0.18	-0.11	-0.12	-0.78
LONG-TERM INTEREST RATE (% PT)	-0.31	-0.01	0.07	0.03	0.00	0.04	-0.11	-0.12
EXCHANGE RATE ($/LOCAL UNIT)*	-4.60	6.83	7.06	6.90	6.76	7.09	6.69	0.00
DEVIATION AS % OF BASELINE GNP								
GOVERNMENT DEBT	-0.14	-0.02	0.01	-0.02	0.03	-0.07	-0.17	1.13
NET FOREIGN ASSETS	-0.49	-0.95	-1.11	0.11	-0.54	0.33	2.61	-0.09
FOREIGN SAVING**	0.49	-0.07	-0.08	-0.10	0.13	-0.05	-0.80	0.09
+ GEN. GOVERNMENT BALANCE	-0.16	0.02	-0.01	0.02	-0.03	0.07	0.17	-0.10
+ PRIVATE SAVING	0.22	-0.09	-0.13	0.01	-0.18	-0.10	0.22	1.06
= INVESTMENT	0.56	-0.14	-0.22	-0.07	-0.08	-0.07	-0.42	1.05
92								
REAL GDP	0.86	-0.18	-0.24	-0.07	-0.00	-0.07	-0.55	0.28
REAL GNP	1.02	-0.35	-0.43	-0.07	-0.06	-0.04	-0.30	0.29
REAL ABSORPTION	0.56	0.02	-0.08	0.06	0.03	0.10	0.13	0.26
CAPITAL STOCK	0.30	-0.03	-0.13	-0.02	-0.01	-0.02	-0.09	0.08
GDP DEFLATOR	2.34	-0.10	0.05	-0.26	-0.43	-0.20	-0.55	0.83
ABSORPTION INFLATION (% PT)	0.96	-0.05	0.13	-0.04	-0.02	-0.01	-0.05	0.00
SHORT-TERM INTEREST RATE (% PT)	-0.77	-0.13	-0.08	-0.15	-0.20	-0.12	-0.50	-0.41
LONG-TERM INTEREST RATE (% PT)	0.02	0.05	0.15	0.11	0.10	0.11	0.04	0.06
EXCHANGE RATE ($/LOCAL UNIT)*	-3.24	4.54	4.86	4.67	4.69	4.84	5.00	0.00
DEVIATION AS % OF BASELINE GNP								
GOVERNMENT DEBT	-0.04	0.05	0.08	-0.05	0.05	-0.31	-0.40	0.75
NET FOREIGN ASSETS	0.30	-1.16	-1.15	-0.22	-0.91	-0.01	1.40	-0.04
FOREIGN SAVING**	-0.26	0.27	0.18	0.08	0.16	0.09	0.22	-0.02
+ GEN. GOVERNMENT BALANCE	-0.18	-0.01	0.00	0.04	0.01	0.10	0.17	-0.10
+ PRIVATE SAVING	0.88	-0.30	-0.27	-0.15	-0.22	-0.23	-0.50	0.89
= INVESTMENT	0.44	-0.04	-0.08	-0.03	-0.04	-0.04	-0.11	0.78
95								
REAL GDP	-0.19	0.11	-0.11	0.07	0.04	0.06	0.23	-0.05
REAL GNP	-0.07	0.00	-0.21	0.06	-0.03	0.06	0.31	-0.03
REAL ABSORPTION	-0.11	0.00	-0.10	-0.02	-0.05	0.03	0.25	-0.05
CAPITAL STOCK	-0.06	0.02	-0.13	-0.03	-0.02	-0.04	0.01	-0.04
GDP DEFLATOR	5.10	-0.10	0.43	0.07	0.10	0.14	-0.27	2.13
ABSORPTION INFLATION (% PT)	0.72	0.09	0.16	0.19	0.20	0.19	0.29	0.00
SHORT-TERM INTEREST RATE (% PT)	-0.04	0.00	0.15	0.06	0.06	0.09	-0.02	0.02
LONG-TERM INTEREST RATE (% PT)	0.24	0.11	0.18	0.17	0.17	0.16	0.20	0.19
EXCHANGE RATE ($/LOCAL UNIT)*	-2.51	3.42	3.46	3.53	3.63	3.54	4.52	0.00
DEVIATION AS % OF BASELINE GNP								
GOVERNMENT DEBT	0.97	0.04	0.15	-0.03	0.04	-0.04	-0.39	0.97
NET FOREIGN ASSETS	0.60	-1.18	-0.99	-0.14	-0.98	-0.13	0.82	0.02
FOREIGN SAVING**	-0.04	0.07	0.07	-0.06	0.03	-0.00	0.02	-0.02
+ GEN. GOVERNMENT BALANCE	-0.44	0.00	-0.03	-0.02	-0.01	-0.15	-0.05	-0.23
+ PRIVATE SAVING	1.10	-0.06	0.04	0.06	-0.02	0.15	0.03	1.00
= INVESTMENT	0.63	0.01	0.08	-0.02	-0.00	-0.00	0.00	0.75

* FOR U.S. IS EFFECTIVE RATE
** EQUALS CURRENT ACCOUNT DEFICIT / BASELINE GDP

TABLE B21A: US MONEY SHOCK: CONSISTENT EXPECTATIONS, DETAILED RESULTS

INTER20_SHOCK_MUS VS. INTER20

	90	91	92	93	94	95	96	97	98	99	100
UNITED STATES*											
REAL GDP	0.83	1.63	0.86	0.45	0.09	-0.19	-0.38	-0.49	-0.54	-0.53	-0.49
REAL GNP	0.88	1.83	1.02	0.62	0.23	-0.07	-0.28	-0.41	-0.48	-0.49	-0.45
CAPACITY UTILIZATION RATE	0.83	1.55	0.75	0.35	0.01	-0.21	-0.36	-0.43	-0.44	-0.41	-0.36
REAL DISPOSABLE INCOME	0.50	2.22	1.55	1.25	0.87	0.52	0.20	-0.06	-0.26	-0.40	-0.49
REAL ABSORPTION	0.67	1.02	0.56	0.30	0.07	-0.11	-0.23	-0.31	-0.35	-0.35	-0.32
REAL CONSUMPTION	0.45	1.26	0.88	0.68	0.43	0.20	-0.00	-0.16	-0.28	-0.36	-0.39
REAL INVESTMENT	2.36	1.37	0.04	-0.76	-1.21	-1.39	-1.36	-1.21	-0.97	-0.70	-0.42
REAL GOV'T SPENDING	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
REAL EXPORTS	1.35	2.56	0.60	0.21	-0.26	-0.58	-0.77	-0.85	-0.84	-0.77	-0.65
REAL IMPORTS	0.01	-2.41	-1.74	-0.99	-0.36	0.14	0.48	0.70	0.81	0.85	0.82
GDP DEFLATOR	0.20	1.29	2.34	3.38	4.32	5.10	5.69	6.09	6.32	6.39	6.34
ABSORPTION DEFLATOR	0.84	1.54	2.48	3.41	4.27	5.00	5.56	5.95	6.18	6.27	6.24
EXPORT DEFLATOR	0.20	3.82	3.80	4.25	4.60	4.92	5.19	5.38	5.50	5.55	5.54
IMPORT DEFLATOR	5.95	3.95	3.91	3.80	3.88	4.05	4.27	4.50	4.70	4.86	4.97
PRICE IN FOREIGN MARKETS	6.58	4.96	4.49	4.07	3.89	3.85	3.93	4.07	4.23	4.39	4.53
ABSORPTION INFLATION (% PT.)	0.87	0.72	0.96	0.95	0.86	0.72	0.56	0.39	0.22	0.09	-0.03
USER COST OF K (% PT.)	-0.58	-0.38	-0.23	-0.08	0.04	0.13	0.20	0.23	0.24	0.23	0.21
TOTAL REAL WEALTH	0.28	0.29	0.20	0.13	0.06	0.01	-0.04	-0.07	-0.08	-0.09	-0.08
HUMAN REAL WEALTH	0.35	0.32	0.19	0.08	-0.00	-0.08	-0.13	-0.16	-0.18	-0.18	-0.18
NOMINAL MONEY BALANCES	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00
SHORT-TERM INT RATE (% PT.)	-1.75	-0.90	-0.77	-0.50	-0.25	-0.04	0.13	0.25	0.32	0.35	0.35
REAL SHORT-TERM RATE (% PT.)	-2.54	-1.74	-1.73	-1.40	-1.05	-0.68	-0.35	-0.06	0.16	0.32	0.42
LONG-TERM INT RATE (% PT.)	-0.31	-0.10	0.02	0.13	0.20	0.24	0.26	0.25	0.23	0.20	0.16
REAL LONG-TERM RATE (% PT.)	-0.91	-0.61	-0.39	-0.17	0.01	0.16	0.26	0.32	0.34	0.33	0.31
EXCHANGE RATE (=1)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
EXCHANGE RATE (EFFECTIVE)	-4.60	-3.55	-3.24	-2.89	-2.65	-2.51	-2.45	-2.46	-2.52	-2.61	-2.71
REAL EXCHANGE RATE (EFFECTIVE)	-6.04	-3.55	-2.09	-0.68	0.42	1.21	1.71	1.97	2.03	1.94	1.76
REAL COMPETITIVENESS INDEX	-0.06	-0.01	-0.01	0.00	0.01	0.01	0.01	0.01	0.01	0.01	0.01
CURRENT ACCOUNT ($ BILLIONS)	-27.01	29.52	15.79	14.04	8.33	2.92	-2.12	-6.27	-9.25	-10.96	-11.33
CURR. ACCT. (LOCAL CURRENCY)	-27.01	29.52	15.79	14.04	8.33	2.92	-2.12	-6.27	-9.25	-10.96	-11.33
FISCAL VARIABLES											
TAX RATE (% PT.)	-0.19	-0.46	-0.44	-0.44	-0.40	-0.33	-0.26	-0.18	-0.10	-0.04	0.02
TAX REVENUES	0.12	0.53	0.89	1.55	2.37	3.23	4.05	4.77	5.36	5.79	6.08
NOMINAL GOV'T SPENDING	0.75	0.13	1.47	2.43	3.55	4.53	5.35	5.98	6.40	6.63	6.70
DEBT/ACTUAL GDP (% PT.)	-0.45	-1.09	-1.02	-0.97	-0.83	-0.65	-0.44	-0.23	-0.04	0.12	0.25
TARGET DEBT/GDP (% PT.)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
DEFICIT (LOCAL CURRENCY)	8.66	-3.84	11.21	18.33	26.36	31.91	35.22	36.22	35.09	32.12	27.70
DEVIATION AS % OF BASELINE GDP											
REAL WEALTH	3.13	3.33	2.30	1.47	0.70	0.06	-0.43	-0.76	-0.94	-0.98	-0.92
GOVERNMENT DEBT	-0.13	-0.20	-0.04	0.22	0.55	0.91	1.28	1.60	1.87	2.08	2.21
CAPITAL STOCK	0.40	0.60	0.56	0.38	0.14	-0.10	-0.33	-0.51	-0.63	-0.70	-0.71
NFA	-0.47	0.04	0.28	0.47	0.56	0.56	0.51	0.40	0.28	0.15	0.04
TRADE BALANCE	-0.47	0.39	0.16	0.11	0.04	-0.02	-0.06	-0.08	-0.08	-0.08	-0.06
PRIMARY GOV'T BALANCE	-0.15	-0.22	-0.34	-0.40	-0.42	-0.39	-0.34	-0.26	-0.17	-0.09	-0.00
FOREIGN SAVING	0.47	-0.48	-0.24	-0.20	-0.11	-0.04	0.03	0.07	0.10	0.11	0.11
+ GEN. GOV. BALANCE	-0.15	0.06	0.17	-0.27	-0.36	-0.41	-0.43	-0.42	-0.38	-0.33	-0.27
+ INVESTMENT	0.53	0.48	0.42	0.44	0.50	0.59	0.69	0.79	0.87	0.94	0.98
= PRIVATE SAVING	0.21	0.90	0.83	0.91	0.98	1.04	1.10	1.13	1.15	1.15	1.14

* % DIFFERENCE SHOCK-MINUS-CONTROL UNLESS OTHERWISE INDICATED

TABLE B31: US MONEY SUPPLY SHOCK: ADAPTIVE EXPECTATIONS

	U.S.	JAPAN	GERMANY	FRANCE	U.K.	ITALY	CANADA	TOTAL G7
90								
REAL GDP	0.36	-0.08	-0.12	-0.08	-0.21	-0.09	-0.25	0.09
REAL GNP	0.39	-0.11	-0.16	-0.08	-0.22	-0.09	-0.19	0.08
REAL ABSORPTION	0.33	-0.01	-0.02	-0.02	-0.08	-0.04	-0.02	0.13
CAPITAL STOCK	0.07	-0.01	-0.01	-0.01	-0.01	-0.01	-0.02	0.02
GDP DEFLATOR	0.02	-0.05	0.08	0.00	-0.03	-0.03	0.06	0.01
ABSORPTION INFLATION (% PT)	0.28	-0.16	-0.07	-0.08	-0.07	-0.08	-0.46	0.00
SHORT-TERM INTEREST RATE (% PT)	-2.03	-0.06	-0.02	-0.03	-0.11	-0.06	-0.08	-0.88
LONG-TERM INTEREST RATE (% PT)	-0.67	-0.02	-0.01	-0.01	-0.04	-0.02	-0.03	-0.29
EXCHANGE RATE ($/LOCAL UNIT)*	-1.90	2.71	2.77	2.75	2.65	2.72	2.68	0.00
DEVIATION AS % OF BASELINE GNP								
GOVERNMENT DEBT	-0.20	-0.00	-0.00	-0.01	0.02	-0.03	-0.08	0.38
NET FOREIGN ASSETS	-0.22	-0.42	-0.48	0.02	-0.26	0.11	1.07	-0.06
FOREIGN SAVING**	0.22	0.00	-0.00	-0.02	0.09	0.00	-0.32	0.06
+ GEN. GOVERNMENT BALANCE	-0.10	0.00	0.00	0.01	-0.02	0.03	0.08	-0.06
+ PRIVATE SAVING	0.05	-0.06	-0.03	-0.01	-0.12	-0.06	0.08	0.39
= INVESTMENT	0.17	-0.06	-0.04	-0.03	-0.05	-0.03	-0.15	0.40
92								
REAL GDP	1.39	-0.10	-0.14	-0.13	-0.06	-0.13	-0.06	0.54
REAL GNP	1.64	-0.34	-0.43	-0.13	-0.09	-0.08	0.32	0.57
REAL ABSORPTION	1.31	-0.04	-0.08	-0.07	-0.06	-0.07	-0.09	0.54
CAPITAL STOCK	0.48	-0.04	-0.06	-0.04	-0.05	-0.04	-0.10	0.15
GDP DEFLATOR	0.82	-0.18	-0.18	-0.19	-0.29	-0.17	-0.54	0.20
ABSORPTION INFLATION (% PT)	0.45	-0.08	-0.10	-0.09	-0.11	-0.08	-0.08	0.00
SHORT-TERM INTEREST RATE (% PT)	-1.21	-0.13	-0.14	-0.15	-0.16	-0.14	-0.27	-0.59
LONG-TERM INTEREST RATE (% PT)	-1.04	-0.07	-0.08	-0.08	-0.10	-0.08	-0.18	-0.48
EXCHANGE RATE ($/LOCAL UNIT)*	-1.96	2.89	2.88	2.87	2.82	2.88	2.58	0.00
DEVIATION AS % OF BASELINE GNP								
GOVERNMENT DEBT	-0.48	0.04	0.07	-0.04	0.02	-0.20	-0.31	0.26
NET FOREIGN ASSETS	0.14	-0.89	-0.98	-0.00	-0.32	0.18	1.66	-0.02
FOREIGN SAVING**	-0.14	0.24	0.26	-0.00	0.02	-0.04	-0.43	-0.01
+ GEN. GOVERNMENT BALANCE	0.09	-0.02	-0.02	0.02	0.01	0.10	0.14	0.02
+ PRIVATE SAVING	0.73	-0.33	-0.36	-0.12	-0.13	-0.15	0.06	0.58
= INVESTMENT	0.69	-0.11	-0.13	-0.10	-0.11	-0.08	-0.23	0.59
95								
REAL GDP	1.42	0.19	0.27	0.24	0.37	0.23	0.81	0.78
REAL GNP	1.72	-0.05	-0.03	0.25	0.40	0.28	1.20	0.83
REAL ABSORPTION	1.61	0.06	0.14	0.15	0.22	0.18	0.57	0.79
CAPITAL STOCK	1.27	-0.01	-0.02	-0.02	0.04	-0.02	0.12	0.48
GDP DEFLATOR	3.15	-0.30	-0.35	-0.34	-0.33	-0.31	-0.34	1.09
ABSORPTION INFLATION (% PT)	0.84	0.05	0.06	0.03	0.08	0.03	0.25	0.00
SHORT-TERM INTEREST RATE (% PT)	-0.16	-0.05	-0.04	-0.05	0.02	-0.04	0.21	-0.08
LONG-TERM INTEREST RATE (% PT)	-0.60	-0.08	-0.08	-0.09	-0.06	-0.08	-0.01	-0.29
EXCHANGE RATE ($/LOCAL UNIT)*	-1.75	2.45	2.47	2.43	2.51	2.46	2.66	0.00
DEVIATION AS % OF BASELINE GNP								
GOVERNMENT DEBT	-0.18	0.05	0.03	-0.14	-0.11	-0.40	-0.47	0.27
NET FOREIGN ASSETS	0.40	-1.28	-1.43	0.13	-0.01	0.29	2.76	0.01
FOREIGN SAVING**	-0.06	0.18	0.22	-0.08	-0.14	-0.07	-0.47	-0.01
+ GEN. GOVERNMENT BALANCE	-0.21	0.01	0.02	0.04	0.06	0.04	0.02	-0.10
+ PRIVATE SAVING	1.43	-0.21	-0.20	0.05	0.17	0.02	0.72	0.93
= INVESTMENT	1.16	-0.02	0.04	0.01	0.09	-0.01	0.28	0.82

* FOR U.S. IS EFFECTIVE RATE
** EQUALS CURRENT ACCOUNT DEFICIT / BASELINE GDP

TABLE B31A: US MONEY SHOCK: ADAPTIVE EXPECTATIONS, DETAILED RESULTS

	90	91	92	93	94	95	96	97	98	99	100
UNITED STATES*											
REAL GDP	0.36	1.19	1.39	1.58	1.55	1.42	1.20	0.91	0.59	0.26	-0.06
REAL GNP	0.39	1.40	1.64	1.88	1.86	1.72	1.45	1.12	0.74	0.34	-0.06
CAPACITY UTILIZATION RATE	0.36	1.16	1.31	1.41	1.28	1.05	0.75	0.42	0.10	-0.21	-0.48
REAL DISPOSABLE INCOME	0.33	1.67	2.14	2.63	2.82	2.85	2.69	2.39	1.99	1.50	0.96
REAL ABSORPTION	0.33	0.97	1.31	1.59	1.64	1.61	1.46	1.25	0.99	0.70	0.40
REAL CONSUMPTION	0.34	1.05	1.29	1.51	1.60	1.64	1.61	1.53	1.39	1.21	0.99
REAL INVESTMENT	0.72	1.83	2.93	3.74	3.73	3.35	2.59	1.62	0.58	-0.43	-1.35
REAL GOV'T SPENDING	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
REAL EXPORTS	0.32	1.42	0.74	0.60	0.35	0.08	-0.20	-0.48	-0.75	-1.00	-1.23
REAL IMPORTS	0.08	-0.34	0.18	0.78	1.25	1.75	2.16	2.50	2.74	2.88	2.90
GDP DEFLATOR	0.02	0.35	0.82	1.46	2.25	3.15	4.12	5.10	6.06	6.96	7.77
ABSORPTION DEFLATOR	0.27	0.53	0.96	1.55	2.28	3.11	4.01	4.93	5.84	6.70	7.49
EXPORT DEFLATOR	0.01	1.36	1.65	2.11	2.60	3.16	3.74	4.34	4.94	5.54	6.11
IMPORT DEFLATOR	2.33	1.99	2.09	2.10	2.19	2.33	2.55	2.85	3.23	3.67	4.16
PRICE IN FOREIGN MARKETS	2.58	2.45	2.48	2.37	2.30	2.25	2.27	2.38	2.59	2.89	3.28
ABSORPTION INFLATION (% PT.)	0.28	0.26	0.45	0.60	0.74	0.84	0.90	0.92	0.90	0.85	0.76
USER COST OF K (% PT.)	-0.55	-0.79	-0.91	-0.93	-0.88	-0.79	-0.66	-0.51	-0.33	-0.15	0.04
TOTAL REAL WEALTH	0.09	0.21	0.37	0.59	0.82	1.02	1.16	1.23	1.23	1.15	1.00
HUMAN REAL WEALTH	0.11	0.23	0.39	0.58	0.80	0.99	1.13	1.19	1.18	1.10	0.96
NOMINAL MONEY BALANCES	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00
SHORT-TERM INT RATE (% PT.)	-2.03	-1.52	-1.21	-0.84	-0.50	-0.16	0.16	0.45	0.72	0.96	1.15
REAL SHORT-TERM RATE (% PT.)	-2.12	-1.66	-1.44	-1.18	-0.97	-0.74	-0.52	-0.30	-0.07	0.15	0.35
LONG-TERM INT RATE (% PT.)	-0.67	-0.95	-1.04	-0.97	-0.82	-0.60	-0.35	-0.09	0.18	0.44	0.67
REAL LONG-TERM RATE (% PT.)	-0.76	-1.09	-1.27	-1.32	-1.28	-1.18	-1.03	-0.84	-0.61	-0.37	-0.12
EXCHANGE RATE (=1)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
EXCHANGE RATE (EFFECTIVE)	-1.90	-1.87	-1.96	-1.92	-1.86	-1.75	-1.63	-1.50	-1.38	-1.28	-1.20
REAL EXCHANGE RATE (EFFECTIVE)	-2.52	-2.09	-1.66	-0.93	-0.08	0.86	1.79	2.66	3.40	3.98	4.38
REAL COMPETITIVENESS INDEX	-0.03	-0.01	-0.01	-0.00	0.00	0.01	0.01	0.02	0.02	0.03	0.03
CURRENT ACCOUNT ($ BILLIONS)	-12.26	12.48	8.51	8.95	7.41	4.22	-0.66	-7.00	-14.65	-23.30	-32.59
CURR. ACCT. (LOCAL CURRENCY)	-12.26	12.48	8.51	8.95	7.41	4.22	-0.66	-7.00	-14.65	-23.30	-32.59
FISCAL VARIABLES											
TAX RATE (% PT.)	-0.13	-0.35	-0.49	-0.61	-0.70	-0.74	-0.74	-0.70	-0.63	-0.52	-0.40
TAX REVENUES	-0.24	-0.35	-0.27	-0.06	0.31	0.88	1.63	2.53	3.54	4.62	5.72
NOMINAL GOV'T SPENDING	0.25	-1.07	-0.61	-0.16	0.64	1.64	2.82	4.09	5.41	6.73	7.99
DEBT/ACTUAL GDP (% PT.)	-0.30	-0.84	-1.13	-1.40	-1.55	-1.59	-1.53	-1.38	-1.16	-0.87	-0.54
TARGET DEBT/GDP (% PT.)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
DEFICIT (LOCAL CURRENCY)	5.52	-10.97	-5.70	-1.65	6.28	15.56	26.00	36.56	46.66	55.69	63.06
DEVIATION AS % OF BASELINE GDP											
REAL WEALTH	0.99	2.32	4.19	6.57	9.14	11.34	12.93	13.71	13.63	12.71	11.06
GOVERNMENT DEBT	-0.19	-0.37	-0.45	-0.47	-0.37	-0.17	0.14	0.54	1.00	1.49	2.00
CAPITAL STOCK	0.12	0.42	0.89	1.45	1.96	2.37	2.61	2.67	2.54	2.26	1.84
NFA	-0.21	0.00	0.13	0.26	0.34	0.38	0.35	0.25	0.08	-0.17	-0.47
TRADE BALANCE	-0.21	0.07	-0.02	-0.05	-0.07	-0.10	-0.13	-0.15	-0.17	-0.18	-0.18
PRIMARY GOV'T BALANCE	-0.10	-0.17	-0.24	-0.32	-0.39	-0.45	-0.48	-0.48	-0.45	-0.39	-0.30
FOREIGN SAVING	0.21	-0.20	-0.13	-0.13	-0.10	-0.05	0.01	0.08	0.16	0.24	0.31
+ GEN. GOV. BALANCE	-0.10	0.18	0.09	0.02	-0.09	-0.20	-0.32	-0.42	-0.51	-0.57	-0.61
+ INVESTMENT	0.16	0.39	0.65	0.89	1.02	1.10	1.13	1.12	1.09	1.06	1.03
= PRIVATE SAVING	0.05	0.42	0.69	1.00	1.20	1.36	1.43	1.46	1.44	1.39	1.32

* % DIFFERENCE SHOCK-MINUS-CONTROL UNLESS OTHERWISE INDICATED

Appendix C
Mnemonics, Model Code, and Parameter Values

Mnemonics for Typical Industrial Country

Endogenous Variables:

Mnemonic	Definition
a	real domestic absorption
b	private-sector holdings of government bonds
c	real consumption expenditure
coil	real consumption of oil
cu	capacity utilization rate
curball	current account, local currency
curbal	current account, U.S. dollars
ei	exchange rate, US$/local currency
ere	expected exchange rate
erea	expected exchange rate, adaptive
fm	foreign export markets
gdef	nominal government deficit
gdp	real gross domestic product
ge	total government expenditure
gnp	real gross national product
icom	real imports of commodities
im	real import volume (excluding oil and commodities
invest	real investment
ioil	real import volume of oil
it	total real import volume
k	real net capital stock
merm	effective exchange rate
mermr	real effective exchange rate
nfa	net claims of foreigners, U.S. dollars
p	absorption deflator
pfm	price in foreign markets
pgnp	GNP/GDP deflator
pgnpno	GNP/GDP deflator excluding oil
pi	inflation rate
pie	expected inflation rate
piea	expected inflation rate (adaptive)
pim	import prices (excluding oil and commodities)
pit	total import price
pxm	export prices (excluding oil)
pxt	total export price
r	average interest rate
rci	real competitiveness index
rl	long-term nominal interest rate
rlr	real ex-ante long-term interest rate
rs	short-term nominal interest rate
rsr	real short-term interest rate
tax	government tax receipts
trate	tax rate
ucstcap	real user cost of capital
w	real total net wealth
wh	human wealth
xm	real export volume (excluding oil)
xt	total real export volume
ycap	capacity output
yd	real disposable income

Exogenous Variables:

Mnemonic	Definition
bratio	target ratio of nominal government debt to GNP
ctrate	corporate tax rate
delta	depreciation rate for the capital stock
g	real government spending on goods and services
gexog	other government spending (excluding interest payments and transfers)
m	high-powered money
prodoil	real production of oil
txcred	tax credit on investment expenditures
xoil	real exports of oil

Other Model Variables

Developing Countries:

dc_ctot	real total consumption
dc_investc	real investment (commodity sector)
dc_investm	real investment (manufacturing sector)
dc_kc	capital stock (commodity sector)
dc_km	capital stock (manufacturing sector)
dc_qnt	real output of non-traded goods
dc_xcom	commodity exports
dc_xsm	supply of manufactured exports
dc_kcomshr	share of commodity sector in investment
dc_oilshr	share of developing countries in ROW oil production
dc_xoilshr	share of developing countries in ROW oil exports

Other:

dum	switch that makes the tax rate endogenous
dum74	oil price shock dummy (equals 1 after 1973)
t	linear time trend (1960=1)

INTERMOD 2.0: Equation Listing for Industrial Country Block (Japan)

```
49:JC      LOG(JA_C) = JC1*((1-WRATS)*DEL(1 : LOG(JA_YD))+WRATS*DEL(1 : LOG(JA_W)))+JC4*((1-WRAT)*LOG(JA_YD(-1))+WRAT*(JC0+LOG(
           JA_W(-1))+JC2*(JC3*JA_RLR+(1-JC3)*JA_RSR))+(1-JC4)*LOG(JA_C(-1))+RES_JA_C

50:JCOIL   DEL(1 : LOG(JA_COIL)) = JCOIL0+JCOIL1*DEL(1 : LOG(JA_GDP))+JCOIL2*DEL(1 : LOG(POIL/JA_ER/JA_PGNP))+JCOIL3*LOG(POIL(-1)
           /JA_ER(-1)/JA_PGNP(-1))+JCOIL4*LOG(JA_GDP(-1)/JA_COIL(-1))+RES_JA_COIL

51:JK      LOG(JA_K) = JK0+(1-ADAP)*(JK1*SUM(I = 0 TO 4 : LOG(JA_GDP(I)))/5+(1-3*JK1)*DEL(5 : LOG(JA_YCAP(4)))/5)+(1-JK1)*LOG(
           JA_K(-1))+ADAP*(JK1*SUM(I = -2 TO 0 : LOG(JA_GDP(I)))/3+(1-2*JK1)*DEL(3 : LOG(JA_YCAP))/3)+JK3*DUM74+JK4*(JA_P/JA_PGNP
           )*JA_UCSTCAP+RES_JA_K

52:JINV    JA_INVEST = DEL(1 : JA_K)+JA_DELTA*JA_K(-1)+RES_JA_INVEST

53:JXM     JA_XM*JA_PXM*JA_ER/MTOT = JX0+JA_FM/MTOT+W22*(JX1*JA_RCI+JX2*JA_RCI(-1))+JX3*T+RES_JA_XM

54:JXT     JA_XT = JA_XM+JA_XOIL+RES_JA_XT

55:JIM     LOG(JA_IM) = JI0+JI1*LOG(JA_A)+(1-JI1)*LOG(JA_A(-1))+JI2*LOG(JA_PIM/JA_PGNPNO)+JI3*LOG(JA_PIM(-1)/JA_PGNPNO(-1))+JI4*T
           +RES_JA_IM

56:JIOIL   JA_IOIL = JA_COIL+JA_XOIL-JA_PRODOIL+RES_JA_IOIL

57:JIC     LOG(JA_ICOM) = JIC0+JIC2*DEL(1 : LOG(PCOM/JA_ER/JA_PGNP))+JIC1*DEL(1 : LOG(JA_GDP))+JIC3*LOG(PCOM(-1)/JA_ER(-1)/
           JA_PGNP(-1))+JIC4*LOG(JA_GDP(-1))+JIC5*LOG(JA_ICOM(-1))+RES_JA_ICOM

58:JIT     JA_IT = JA_IM+JA_IOIL+JA_ICOM+RES_JA_IT

59:JA      JA_A = JA_C+JA_INVEST+JA_G+RES_JA_A

60:JGDP    JA_GDP = JA_A+JA_XT-JA_IT+RES_JA_GDP

61:JGNP    JA_GNP = JA_GDP+US_R*JA_NFA(-1)/JA_ER/JA_PGNP+RES_JA_GNP

62:JW      JA_W = JA_K+(JA_M+JA_B+JA_NFA/JA_ER)/JA_P+WRAT*JA_WH

63:JYD     JA_YD = ((1-JBETA)*JA_GDP*JA_PGNP-JA_TAX)/JA_P

64:JWH     JA_WH = (1-ADAP)*(JA_YD+JA_WH(1)/(1+RRBAR+BRATE))+ADAP*((1-JBETA)*(JA_YCAP-JA_TAX/JA_P)/(RRBAR+BRATE-GROW))+RES_JA_WH

65:JGE     JA_GE = JA_P*JA_G+JA_R*JA_B(-1)+JA_GEXOG

66:JTAX    JA_TAX = JA_TRATE*(JA_PGNP*JA_GNP-JA_DELTA*JA_K(-1)*JA_P+JA_R*JA_B(-1))+RES_JA_TAX

67:JTRATE  DEL(1 : JA_TRATE) = DUM*(TAU1*(JA_B/(JA_GDP*JA_PGNP)-JA_BRATIO)+TAU2*DEL(1 : JA_B/(JA_GDP*JA_PGNP)-JA_BRATIO))+
           RES_JA_TRATE

68:JB      DEL(1 : JA_B)+DEL(1 : JA_M) = JA_GE-JA_TAX+RES_JA_B

69:JGDEF   JA_GDEF = DEL(1 : JA_B+JA_M)

70:JM      LOG(JA_M/JA_PGNP) = JM0+JM1*LOG(JA_GDP)+JM2*JA_RS+RES_JA_RS

71:JR      JA_R = 0.5*JA_RS(-1)/100+0.5*SUM(I = -3 TO -1 : JA_RL(I)/100)/3

72:JRL     JA_RL = (1-ADAP)*(SUM(I = 0 TO 9 : JA_RS(I))/10)+ADAP*(0.33*JA_RS+0.67*JA_RL(-1))+RES_JA_RL

73:JRLR    JA_RLR = ADAP*(JA_RL/100-JA_PIE)+(1-ADAP)*(SUM(I = 0 TO 9 : JA_RSR(I))/10)+RES_JA_RLR

74:JRSR    JA_RSR = JA_RS/100-ADAP*JA_PIE-(1-ADAP)*0.5*(JA_PI+JA_PIE)+RES_JA_RSR

75:JUCST   JA_UCSTCAP = (JA_DELTA+(1-JA_CTRATE)*JA_RLR)*(1-JA_TXCRED-JA_CTRATE*0.2/(JA_RL/100+0.2))/(1-JA_CTRATE)

76:JPGNP   JA_PGNP*JA_GNP = (JA_P*JA_A+JA_CURBALL)*(1+RES_JA_PGNP)

77:JPNO    JA_PGNPNO = (JA_GDP*JA_PGNP-JA_PRODOIL*POIL/JA_ER*JE80)/(JA_GDP-JA_PRODOIL)
```

```
78:JP     DEL(1 : LOG(JA_P)) = JP0+JP1*(0.5*JA_CU*0.01+0.5*JA_CU(-1)*0.01)+JP2*JA_PIE+(1-JP2)*DEL(1 : LOG(JA_P(-1)))+JP3*(JA_PIT
          *JA_IT/(JA_A*JA_P))*(DEL(1 : LOG(JA_PIT))-DEL(1 : LOG(JA_P(-1))))+(JP4-JP3)*(JA_PIT(-1)*JA_IT(-1)/(JA_A(-1)*JA_P(-1)))
          *(DEL(1 : LOG(JA_PIT(-1)))-DEL(1 : LOG(JA_P(-2))))+RES_JA_P

79:JPI    JA_PI = JA_P/JA_P(-1)-1

80:JPFM   LOG(JA_PFM) = X21*LOG(US_PGNPNO)+X22*LOG(JA_ER/JE80)+X23*LOG(GR_PGNPNO*GR_ER/GE80)+X24*LOG(FR_PGNPNO*FR_ER/FE80)+X25*
          LOG(UK_PGNPNO*UK_ER/KE80)+X26*LOG(IT_PGNPNO*IT_ER/IE80)+X27*LOG(CA_PGNPNO*CA_ER/CE80)+X28*LOG(SI_PGNPNO*SI_ER/SE80)+
          X29*LOG(DC_PGNP*RW_ER/RE80)

81:JPIE   JA_PIE = JA_PI(1)+ADAP*(JA_PIEA-JA_PI(1))

82:JPIEA  JA_PIEA = JA_PIEA(-1)+ETAP*(JA_PI-JA_PIEA(-1))+RES_JA_PIEA

83:JPXM   LOG(JA_PXM) = JPXM0+JPXM1*DEL(1 : LOG(JA_PGNPNO))+(1-JPXM1)*DEL(1 : LOG(JA_PFM))+JPXM2*LOG(JA_PGNPNO(-1))+JPXM3*LOG(
          JA_PFM(-1))+(1-JPXM2-JPXM3)*LOG(JA_PXM(-1))+JPXM4*T+RES_JA_PXM

84:JPXT   JA_PXT = (JA_XM*JA_PXM+POIL/JA_ER*JE80*JA_XOIL)/JA_XT

85:JPIM   JA_PIM = (S12*US_PXM*US_ER/UE80+S22*JA_PXM*JA_ER/JE80+S32*GR_PXM*GR_ER/GE80+S42*FR_PXM*FR_ER/FE80+S52*UK_PXM*UK_ER/
          KE80+S62*IT_PXM*IT_ER/IE80+S72*CA_PXM*CA_ER/CE80+S82*SI_PXM*SI_ER/SE80+S92*RW_PXM*RW_ER/RE80)*(JE80/JA_ER)*(1+
          RES_JA_PIM)

86:JPIT   JA_PIT = (JA_IM*JA_PIM+JA_IOIL*POIL/JA_ER*JE80+JA_ICOM*PCOM/JA_ER*JE80)/JA_IT

87:JYCAP  LOG(JA_YCAP) = JYC0+LOG(1+JN)*T*(1-JBETA)+LOG(JA_K(-1))*JBETA+RES_JA_YCAP

88:JCU    JA_CU = 100*JA_GDP/JA_YCAP

89:JNFA   DEL(1 : JA_NFA) = JA_CURBAL+RES_JA_NFA

90:JCABL  JA_CURBALL = (US_R*JA_NFA(-1)+RES_JA_CURBALL)/JA_ER+(JA_XT*JA_PXT-JA_IT*JA_PIT)

91:JCAB   JA_CURBAL = JA_CURBALL*JA_ER

92:JER    JA_ER = JA_ERE*((1+JA_RS/100+RES_JA_ER)/(1+US_RS/100))

93:JERE   JA_ERE = JA_ER(1)+ADAP*(JA_EREA-JA_ER(1))

94:JEREA  JA_EREA = (JA_EREA(-1)+ETAE*(JA_ER-JA_EREA(-1)))*(1+RES_JA_EREA)

95:JRCI   JA_RCI = (W21*LOG(US_PXM*US_ER/UE80)+W22*LOG(JA_PXM*JA_ER/JE80)+W23*LOG(GR_PXM*GR_ER/GE80)+W24*LOG(FR_PXM*FR_ER/FE80)+
          W25*LOG(UK_PXM*UK_ER/KE80)+W26*LOG(IT_PXM*IT_ER/IE80)+W27*LOG(CA_PXM*CA_ER/CE80)+W28*LOG(SI_PXM*SI_ER/SE80)+W29*LOG(
          RW_PXM*RW_ER/RE80))/W22

96:JMERM  JA_MERM = EXP((-X22)*LOG(JA_ER/JE80)+(-X23)*LOG(GR_ER/GE80)+(-X24)*LOG(FR_ER/FE80)+(-X25)*LOG(UK_ER/KE80)+(-X26)*LOG(
          IT_ER/IE80)+(-X27)*LOG(CA_ER/CE80)+(-X28)*LOG(SI_ER/SE80))

97:JFM    JA_FM = S21*US_IM*US_PIM*US_ER+S22*JA_IM*JA_PIM*JA_ER+S23*GR_IM*GR_PIM*GR_ER+S24*FR_IM*FR_PIM*FR_ER+S25*UK_IM*UK_PIM*
          UK_ER+S26*IT_IM*IT_PIM*IT_ER+S27*CA_IM*CA_PIM*CA_ER+S28*SI_IM*SI_PIM*SI_ER+S29*RW_IM*RW_PIM*RW_ER

98:JMERMR JA_MERMR = JA_PGNPNO/JA_PFM
```

INTERMOD 2.0: Equation Listing for the Rest of the World

```
399:DCTOT  LOG(DC_CTOT) = DC0+0.37*LOG(DC_GDP+US_R*(DC_NFA(-1)/(DC_P*RW_ER))-DC_DELTA*DC_K(-1)+DEL(1 : DC_NFA)/(DC_P*RW_ER))+0.63
           *LOG(DC_CTOT(-1))+RES_DC_CTOT

400:DINV   DC_INVEST = DC_GDP-(DC_XM+DC_XCOM+DC_XOIL)-DC_CTOT+DC_IT

401:DINVC  DC_INVESTC = RES_DC_INVESTC+MAX(DC_DELTA*DC_KC(-1),MIN(2,PCOM/RW_ER/RW_PXM)*DC_KCOMSHR*DC_INVEST)

402:DKC    DC_KC = DC_KC(-1)*(1-DC_DELTA)+DC_INVESTC

403:DK     DC_K = DC_KC+DC_KM

404:DINVM  DC_INVESTM = DC_INVEST-DC_INVESTC

405:DKM    DC_KM = DC_KM(-1)*(1-DC_DELTA)+DC_INVESTM

406:DXM    DC_XM = RW_XM-HO_XM

407:DXC    DC_XCOM = RW_XCOM+HO_ICOM

408:DXOIL  DC_XOIL = DC_XOILSHR*(RW_XOIL-DC_IOIL)+RES_DC_XOIL

409:DXT    DC_XT = DC_XCOM+DC_XOIL+DC_XM

410:DIOIL  DC_IOIL = DC_OILSHR*DC_IT+RES_DC_IOIL

411:DIM    DC_IM = DC_IT-DC_IOIL

412:DPXM   LOG(DC_XM) = LOG(DC_XSM)+10*RW_RCI-6*RW_RCI(-1)+RES_DC_PXM

413:DA     DC_A = DC_CTOT+DC_INVEST

414:DGDP   DC_GDP = DC_XM+DC_XCOM+DC_XOIL+DC_QNT

415:DQNT   DEL(1 : DC_QNT) = RQNTO*DEL(1 : DC_CTOT)+RES_DC_QNT

416:DP     DC_P = (DC_PXM*DC_QNT+DC_PIT*DC_IT)/(DC_CTOT+DC_INVEST)

417:DPGNP  DC_PGNP = (DC_PXM*(DC_QNT+DC_XM)+PCOM/RW_ER*DC_XCOM+POIL/RW_ER*DC_XOIL)/DC_GDP+RES_DC_PGNP

418:RPFM   LOG(RW_PFM) = X91*LOG(US_PGNPNO)+X92*LOG(JA_PGNPNO*JA_ER/JE80)+X93*LOG(GR_PGNPNO*GR_ER/GE80)+X94*LOG(FR_PGNPNO*FR_ER/
           FE80)+X95*LOG(UK_PGNPNO*UK_ER/KE80)+X96*LOG(IT_PGNPNO*IT_ER/IE80)+X97*LOG(CA_PGNPNO*CA_ER/CE80)+X98*LOG(SI_PGNPNO*
           SI_ER/SE80)+X99*LOG(RW_ER/RE80)

419:PCOM   LOG(DC_XCOM) = RXCOM1*LOG(DC_KC(-1))+RES_PCOM

420:DCAB   DC_CURBAL = DEL(1 : DC_NFA)

421:DPXT   DC_PXT = (DC_PXM*DC_XM+PCOM/RW_ER*DC_XCOM+POIL/RW_ER*DC_XOIL)/DC_XT

422:DPIM   DC_PIM = RW_PIM+RES_DC_PIM

423:DPIT   DC_PIT = (DC_PIM*DC_IM+POIL/RW_ER*DC_IOIL)/DC_IT

424:DXSM   LOG(DC_XSM) = RXSM1*LOG(DC_KM(-1))+RES_DC_XSM

425:DYCAP  DC_YCAP = EXP(DYCAP0+LOG(1+DN)*T*(1-DBETA)+LOG(DC_K(-1))*DBETA)

426:DNFA   DEL(1 : DC_NFA) = ((((1-ADAP)*(DC_XT(4)*DC_PXT(4)*RW_ER(4))+ADAP*(DC_XT*DC_PXT*RW_ER))/(DC_XT(-1)*DC_PXT(-1)*RW_ER(-1)
           ))**(1/(5-4*ADAP))-1)*DC_XT(-1)*DC_PXT(-1)*RW_ER(-1)*DDEBT1+DDEBT2*(ISR*DC_PXT(-1)*DC_XT(-1)*RW_ER(-1)/US_RRBAR(-1)-
           DC_NFA(-1))+RES_DC_NFA

427:DIT    DC_NFA = (DC_PXT*DC_XT-DC_PIT*DC_IT)*RW_ER+(1+US_R)*DC_NFA(-1)+RES_DC_IT

428:HXOIL  HO_XOIL = RW_XOIL-DC_XOIL
```

```
429:HXT     HO_XT = HO_XOIL+HO_XM

430:HIC     DEL(1 : LOG(HO_ICOM)) = HIC0+HIC2*DEL(1 : LOG(PCOM/RW_ER/RW_PXM))+HIC1*DEL(1 : LOG(HO_GDP))+RES_HO_ICOM

431:HCAB    HO_CURBAL = DEL(1 : HO_NFA)

432:HIM     LOG(HO_IM)-LOG(HO_A) = HI0+HI1*LOG(DC_PIM/DC_PGNP)+HI2*(LOG(HO_IM(-1))-LOG(HO_A(-1)))+RES_HO_IM

433:HIT     HO_IT = HO_IM+HO_IOIL+HO_ICOM

434:HA      HO_A = HO_GDP-HO_XT+HO_IT

435:HGDP    HO_GDP = HO_XT+HO_QNT

436:HQNT    DEL(1 : HO_QNT) = HQNT0*DEL(1 : HO_A)+RES_HO_QNT

437:HPXT    HO_PXT = (RW_PXM*HO_XM+POIL/RW_ER*HO_XOIL)/HO_XT+RES_HO_PXT

438:HPIT    HO_PIT = (RW_PIM*HO_IM+POIL/RW_ER*HO_IOIL+PCOM/RW_ER*HO_ICOM)/HO_IT+RES_HO_PIT

439:HNFA    DEL(1 : HO_NFA)/RW_ER = HO_PXT*HO_XT-HO_IT*HO_PIT+US_R*HO_NFA(-1)/RW_ER+RES_HO_NFA

440:RPX     RW_PXM = DC_PXM+RES_RW_PXM

441:RPIM    RW_PIM = (S19*US_PXM*US_ER/UE80+S29*JA_PXM*JA_ER/JE80+S39*GR_PXM*GR_ER/GE80+S49*FR_PXM*FR_ER/FE80+S59*UK_PXM*UK_ER/
            KE80+S69*IT_PXM*IT_ER/IE80+S79*CA_PXM*CA_ER/CE80+S89*SI_PXM*SI_ER/SE80+S99*RW_PXM*RW_ER/RE80)*(RE80/RW_ER)*(1+
            RES_RW_PIM)

442:RIM     RW_IM = DC_IM+HO_IM

443:RXOIL   RW_XOIL = (-(US_XOIL-US_IOIL+(JA_XOIL-JA_IOIL)*JE80+(GR_XOIL-GR_IOIL)*GE80+(FR_XOIL-FR_IOIL)*FE80+(UK_XOIL-UK_IOIL)*
            KE80+(IT_XOIL-IT_IOIL)*IE80+(CA_XOIL-CA_IOIL)*CE80+(SI_XOIL-SI_IOIL)*SE80))/RE80+DC_IOIL+HO_IOIL

444:RXCOM   RW_XCOM = US_ICOM+JA_ICOM*JE80+GR_ICOM*GE80+FR_ICOM*FE80+UK_ICOM*KE80+IT_ICOM*IE80+CA_ICOM*CE80+SI_ICOM*SE80

445:RXM     RW_XM*RW_PXM*RW_ER/MTOT = RX0+RW_FM/MTOT+W99*(RX1*RW_RCI+RX2*RW_RCI(-1))+RX3*T+RES_RW_XM

446:RXT     RW_XT = DC_XT+HO_XT-HO_ICOM

447:RIT     RW_IT = DC_IT+HO_IT-HO_ICOM

448:RPXT    RW_PXT = (HO_XT*HO_PXT+DC_PXT*DC_XT-HO_ICOM*PCOM)/RW_XT

449:RRCI    RW_RCI = (W91*LOG(US_PXM*US_ER/UE80)+W92*LOG(JA_PXM*JA_ER/JE80)+W93*LOG(GR_PXM*GR_ER/GE80)+W94*LOG(FR_PXM*FR_ER/FE80)+
            W95*LOG(UK_PXM*UK_ER/KE80)+W96*LOG(IT_PXM*IT_ER/IE80)+W97*LOG(CA_PXM*CA_ER/CE80)+W98*LOG(SI_PXM*SI_ER/SE80)+W99*LOG(
            RW_PXM*RW_ER/RE80))/W99

450:RPIT    RW_PIT = (HO_IT*HO_PIT+DC_PIT*DC_IT-HO_ICOM*PCOM)/RW_IT

451:RFM     RW_FM = S91*US_IM*US_PIM*US_ER+S92*JA_IM*JA_PIM*JA_ER+S93*GR_IM*GR_PIM*GR_ER+S94*FR_IM*FR_PIM*FR_ER+S95*UK_IM*UK_PIM*
            UK_ER+S96*IT_IM*IT_PIM*IT_ER+S97*CA_IM*CA_PIM*CA_ER+S98*SI_IM*SI_PIM*SI_ER+S99*RW_IM*RW_PIM*RW_ER

452:WTRADE  WTRADE = US_XM*US_PXM-US_IM*US_PIM+(JA_XM*JA_PXM-JA_IM*JA_PIM)*JA_ER+(GR_XM*GR_PXM-GR_IM*GR_PIM)*GR_ER+(FR_XM*FR_PXM-
            FR_IM*FR_PIM)*FR_ER+(UK_XM*UK_PXM-UK_IM*UK_PIM)*UK_ER+(IT_XM*IT_PXM-IT_IM*IT_PIM)*IT_ER+(CA_XM*CA_PXM-CA_IM*CA_PIM)*
            CA_ER+(SI_XM*SI_PXM-SI_IM*SI_PIM)*SI_ER+(RW_XM*RW_PXM-RW_IM*RW_PIM)*RW_ER

453:WTRDR   WTRADER = US_IM-US_XM+(JA_IM-JA_XM)*JE80+(GR_IM-GR_XM)*GE80+(FR_IM-FR_XM)*FE80+(UK_IM-UK_XM)*KE80+(IT_IM-IT_XM)*IE80+(
            CA_IM-CA_XM)*CE80+(SI_IM-SI_XM)*SE80+(RW_IM-RW_XM)*RE80

454:POIL    POIL = RPOIL*(US_PGNP**UWT*(JA_PGNP*JA_ER/JE80)**JWT*(GR_PGNP*GR_ER/GE80)**GWT*(FR_PGNP*FR_ER/FE80)**FWT*(UK_PGNP*
            UK_ER/KE80)**KWT*(IT_PGNP*IT_ER/IE80)**IWT*(CA_PGNP*CA_ER/CE80)**CWT*(SI_PGNP*SI_ER/SE80)**SWT)

455:RMERM   RW_MERM = EXP((-X92)*LOG(JA_ER/JE80)-X93*LOG(GR_ER/GE80)-X94*LOG(FR_ER/FE80)-X95*LOG(UK_ER/KE80)-X96*LOG(IT_ER/IE80)-
            X97*LOG(CA_ER/CE80)-X98*LOG(SI_ER/SE80))
```

IK3	-0.005	IK4	-0.076	IM0	-1.58283
IM1	1.	IM2	-0.022112	IN	0.030708
IPXM0	0.442309	IPXM1	0.668397	IPXM2	0.6
IPXM3	0.4	IPXM4	-0.02064	IP0	-0.153652
IP1	0.15316	IP2	0.326953	IP3	1.00375
IP4	0.772181	ISR	0.03	IWT	0.06
IX0	-0.00306	IX1	-0.62689	IX2	0.45889
IX3	0.00014	IYC0	4.34253	JBETA	0.431
JCOIL0	-0.310547	JCOIL1	1.43846	JCOIL2	-0.037143
JCOIL3	-0.049228	JCOIL4	0.082168	JC0	-3.
JC1	0.4	JC2	-0.8	JC3	0.8
JC4	0.25	JE80	4.42825	JIC0	-2.4911
JIC1	1.0424	JIC2	-0.4044	JIC3	-0.4044
JIC4	0.6924	JIC5	0.	JI0	-3.08078
JI1	1.	JI2	-0.09813	JI3	-0.63802
JI4	0.02591	JK0	0.225	JK1	0.222
JK3	-0.028	JK4	-0.076	JM0	-2.25038
JM1	1.	JM2	-0.022112	JN	0.057664
JPXM0	0.251546	JPXM1	0.498039	JPXM2	0.412285
JPXM3	0.274857	JPXM4	-0.012374	JP0	-0.152195
JP1	0.15316	JP2	0.191725	JP3	1.33552
JP4	0.772181	JWT	0.137909	JX0	-0.04888
JX1	-0.62689	JX2	0.45889	JX3	0.00259
JYC0	2.12461	KBETA	0.33	KCOIL0	-0.316596
KCOIL1	1.521	KCOIL2	-0.042643	KCOIL3	-0.049228
KCOIL4	0.082168	KC0	-3.	KC1	0.4
KC2	-0.8	KC3	0.8	KC4	0.25
KE80	2.32628	KIC0	-2.791	KIC1	1.0424
KIC2	-0.4044	KIC3	-0.4044	KIC4	0.6924
KIC5	0.	KI0	-1.92878	KI1	0.77056
KI2	-0.5	KI3	0.	KI4	0.02012
KI5	0.	KI6	0.	KKCOMSHR	0.05
KK0	0.228	KK1	0.222	KK2	0.08606
KK3	0.004	KK4	-0.076	KLAMBDAB	1.
KLAMBDAM	1.	KM0	-2.48645	KM1	1.
KM2	-0.022112	KM5	0.	KN	0.030708
KPXM0	-0.003607	KPXM1	0.7108	KPXM2	0.257353
KPXM3	0.171569	KPXM4	-0.000746	KPX0	-0.247802
KPX1	0.438057	KP0	-0.153169	KP1	0.15316
KP2	0.293347	KP3	0.514136	KP4	0.772181
KRHOBAR	1.	KRLBAR	0.016	KRRBAR	0.01711
KWT	0.07	KW1	0.281	KW2	0.083
KW3	0.12	KW4	0.23572	KX0	0.03717
KX1	-0.62689	KX2	0.45889	KX3	-0.00198
KX4	-0.0288	KYC0	4.34253	LBETA	0.33
LIC5	-0.594397	RE80	1.	RQNT0	0.5
RRBAR	0.05	RXCOM1	0.3	RXSM1	0.4
RX0	-0.06485	RX1	-0.62689	RX2	0.45889
RX3	0.00354	SBETA	0.33	SCOIL0	-0.269289
SCOIL1	0.845475	SCOIL2	-0.107335	SCOIL3	-0.049228
SCOIL4	0.082168	SC0	-3.	SC1	0.4
SC2	-0.8	SC3	0.8	SC4	0.25
SE80	1.	SIC0	-2.0635	SIC1	1.0424
SIC2	-0.4044	SIC3	-0.4044	SIC4	0.6924
SIC5	0.	SI0	-1.71271	SI1	1.39489
SI2	-0.35949	SI3	-0.42849	SI4	0.02222
SK0	0.23	SK1	0.222	SK3	0.012
SK4	-0.076	SM0	-0.496407	SM1	1.
SM2	-0.022112	SN	0.015462	SPXM0	0.01563
SPXM1	1.	SPXM2	0.249747	SPXM3	0.166498
SPXM4	-0.002354	SP0	-0.153637	SP1	0.15316
SP2	0.705183	SP3	0.746407	SP4	0.772181
SWT	0.152253	SW4	0.23572	SX0	0.03549
SX1	-0.62689	SX2	0.45889	SX3	-0.00186
SYC0	4.19467	S11	0.	S12	0.32217
S13	0.05776	S14	0.10614	S15	0.06886

S16	0.05417	S17	0.6708	S18	0.13366
S19	0.2238	S21	0.15934	S22	0.
S23	0.0328	S24	0.0361	S25	0.01342
S26	0.01595	S27	0.05354	S28	0.05494
S29	0.17489	S31	0.05707	S32	0.03647
S33	0.	S34	0.1151	S35	0.22026
S36	0.18025	S37	0.02514	S38	0.30201
S39	0.10639	S41	0.04778	S42	0.02533
S43	0.05304	S44	0.	S45	0.06097
S46	0.0617	S47	0.03883	S48	0.16696
S49	0.08484	S51	0.03196	S52	0.01777
S53	0.12427	S54	0.06757	S55	0.
S56	0.14972	S57	0.01633	S58	0.09607
S59	0.08724	S61	0.01461	S62	0.01212
S63	0.05917	S64	0.04441	S65	0.11931
S66	0.	S67	0.00914	S68	0.07718
S69	0.04735	S71	0.19895	S72	0.06701
S73	0.00841	S74	0.03	S75	0.01359
S76	0.00843	S77	0.	S78	0.01874
S79	0.02436	S81	0.12273	S82	0.19958
S83	0.5048	S84	0.44961	S85	0.3718
S86	0.4375	S87	0.07761	S88	0.
S89	0.25114	S91	0.36755	S92	0.31954
S93	0.15974	S94	0.15107	S95	0.13179
S96	0.09227	S97	0.10861	S98	0.15043
S99	0.	TAU1	0.015	TAU2	0.4
UBETA	0.34886	UCOIL0	-0.27685	UCOIL1	0.714385
UCOIL2	-0.060121	UCOIL3	-0.049228	UCOIL4	0.082168
UC0	-3.	UC1	0.4	UC2	-0.8
UC3	0.8	UC4	0.25	UE80	1.
UIC0	-2.6023	UIC1	1.0424	UIC2	-0.4044
UIC3	-0.4044	UIC4	0.6924	UIC5	0.
UI0	-3.57807	UI1	1.46488	UI2	-0.1783
UI3	-0.72529	UI4	0.03931	UK0	0.159
UK1	0.222	UK3	-0.002	UK4	-0.076
UM0	-2.55825	UM1	1.	UM2	-0.022112
UN	0.02971	UPXM0	0.035061	UPXM1	1.
UPXM2	0.6	UPXM3	0.4	UPXM4	-0.001508
UP0	-0.152342	UP1	0.15316	UP2	0.280922
UP3	0.945393	UP4	0.772181	USPGNPP	1.
USRR0	1.	UWT	0.354391	UX0	0.02885
UX1	-0.62689	UX2	0.45889	UX3	-0.00168
UYC0	4.56263	WRAT	1.	WRATS	0.
W11	-0.11568	W12	0.01548	W13	0.01918
W14	0.01262	W15	0.01101	W16	0.00706
W17	0.00367	W18	0.03165	W19	0.01502
W21	0.01548	W22	-0.07929	W23	0.01084
W24	0.00769	W25	0.00712	W26	0.00413
W27	0.00515	W28	0.0194	W29	0.00949
W31	0.01918	W32	0.01084	W33	-0.10631
W34	0.015	W35	0.01087	W36	0.00856
W37	0.00384	W38	0.0218	W39	0.01622
W41	0.01262	W42	0.00769	W43	0.015
W44	-0.07232	W45	0.00697	W46	0.00483
W47	0.00255	W48	0.01324	W49	0.00942
W51	0.01101	W52	0.00712	W53	0.01087
W54	0.00697	W55	-0.06929	W56	0.00388
W57	0.0021	W58	0.01925	W59	0.00811
W61	0.00706	W62	0.00413	W63	0.00856
W64	0.00483	W65	0.00388	W66	-0.04695
W67	0.00127	W68	0.01149	W69	0.00573
W71	0.00367	W72	0.00515	W73	0.00384
W74	0.00255	W75	0.0021	W76	0.00127
W77	-0.03605	W78	0.00712	W79	0.01035
W81	0.03165	W82	0.0194	W83	0.0218
W84	0.01324	W85	0.01925	W86	0.01149

W87	0.00712	W88	-0.15082	W89	0.02687
W91	0.01502	W92	0.00949	W93	0.01622
W94	0.00942	W95	0.00811	W96	0.00573
W97	0.01035	W98	0.02687	W99	-0.10121
X12	0.11982	X13	0.10282	X14	0.07648
X15	0.06182	X16	0.03829	X17	0.0926
X18	0.22437	X19	0.2838	X21	0.19258
X22	-1.	X23	0.08768	X24	0.06125
X25	0.04962	X26	0.02999	X27	0.04291
X28	0.18383	X29	0.35215	X31	0.11356
X32	0.058	X33	-1.	X34	0.09849
X35	0.10454	X36	0.07072	X37	0.02145
X38	0.33481	X39	0.19842	X41	0.11962
X42	0.06125	X43	0.13927	X44	-1.
X45	0.07263	X46	0.05068	X47	0.02626
X48	0.30398	X49	0.2263	X51	0.10243
X52	0.05737	X53	0.16679	X54	0.07904
X55	-1.	X56	0.07241	X57	0.01898
X58	0.2686	X59	0.23437	X61	0.09114
X62	0.05028	X63	0.15527	X64	0.08031
X65	0.11873	X66	-1.	X67	0.01677
X68	0.28109	X69	0.20641	X71	0.31854
X72	0.11382	X73	0.06451	X74	0.05929
X75	0.03992	X76	0.02225	X77	-1.
X78	0.14614	X79	0.23553	X81	0.13398
X82	0.08655	X83	0.19046	X84	0.10693
X85	0.11594	X86	0.08081	X87	0.02963
X88	-1.	X89	0.2557	X91	0.22736
X92	0.10959	X93	0.14597	X94	0.08384
X95	0.0726	X96	0.04418	X97	0.066
X98	0.25046	X99	-1.		

```
456:RMERMR RW_MERMR = DC_PGNP/RW_PFM
457:MTOT   MTOT = US_FM+JA_FM+GR_FM+FR_FM+UK_FM+IT_FM+CA_FM+SI_FM+RW_FM
```

INTERMOD 2.0: Model Parameters

ADAP	0.	BRATE	0.03	CBETA	0.33
CCOIL0	-0.102414	CCOIL1	0.980737	CCOIL2	-0.138345
CCOIL3	-0.049228	CCOIL4	0.082168	CC0	-3.
CC1	0.4	CC2	-0.8	CC3	0.8
CC4	0.25	CE80	0.855369	CIC0	-3.4714
CIC1	1.0424	CIC2	-0.4044	CIC3	-0.4044
CIC4	0.6924	CIC5	0.	CI0	-2.16779
CI1	1.63949	CI2	-0.33387	CI3	-0.2
CI4	0.03122	CK0	0.218	CK1	0.222
CK3	0.001	CK4	-0.076	CLAMBDAM	1.
CM0	-2.67056	CM1	1.	CM2	-0.022112
CN	0.030708	CPXM0	0.129467	CPXM1	0.744767
CPXM2	0.169193	CPXM3	0.112795	CPXM4	-0.007218
CP0	-0.148979	CP1	0.15316	CP2	0.331018
CP3	0.771272	CP4	0.772181	CWT	0.0325
CX0	0.01688	CX1	-0.62689	CX2	0.45889
CX3	-0.00084	CYC0	4.34253	DBETA	0.393728
DC0	-0.433787	DC1	0.366304	DC2	0.372915
DC3	-0.318357	DDEBT1	0.6	DDEBT2	0.15
DN	0.045389	DYCAP0	3.73926	DYCAP0	3.739
ETAE	0.3	ETAP	0.3	FBETA	0.33
FCOIL0	-0.352598	FCOIL1	2.36108	FCOIL2	-0.082261
FCOIL3	-0.049228	FCOIL4	0.082168	FC0	-3.
FC1	0.4	FC2	-0.8	FC3	0.8
FC4	0.25	FE80	0.236981	FIC0	-1.9796
FIC1	1.0424	FIC2	-0.4044	FIC3	-0.4044
FIC4	0.6924	FIC5	0.	FI0	-2.19771
FI1	1.16107	FI2	-0.2	FI3	-0.77761
FI4	0.01971	FK0	0.206	FK1	0.222
FK2	0.08606	FK3	0.013	FK4	-0.076
FM0	-2.19747	FM1	1.	FM2	-0.022112
FN	0.030708	FPXM0	0.101837	FPXM1	0.514833
FPXM2	0.423625	FPXM3	0.282417	FPXM4	-0.005549
FP0	-0.151079	FP1	0.15316	FP2	0.297328
FP3	0.668296	FP4	0.772181	FWT	0.0875
FX0	-0.00732	FX1	-0.62689	FX2	0.45889
FX3	0.0001	FYC0	4.34253	GBETA	0.2812
GCOIL0	-0.310099	GCOIL1	1.42987	GCOIL2	-0.133889
GCOIL3	-0.049228	GCOIL4	0.082168	GC0	-3.
GC1	0.4	GC2	-0.8	GC3	0.8
GC4	0.25	GE80	0.55113	GIC0	-1.9503
GIC1	1.0424	GIC2	-0.4044	GIC3	-0.4044
GIC4	0.6924	GIC5	0.	GI0	-2.10596
GI1	0.54125	GI2	-0.25	GI3	-0.25
GI4	0.02932	GK0	0.23	GK1	0.222
GK3	0.003	GK4	-0.076	GM0	-2.13264
GM1	1.	GM2	-0.022112	GN	0.028079
GPXM0	0.008572	GPXM1	0.75623	GPXM2	0.079198
GPXM3	0.052799	GPXM4	-0.000701	GP0	-0.149641
GP1	0.15316	GP2	0.688581	GP3	0.412467
GP4	0.772181	GROW	0.025	GWT	0.106169
GX0	0.00252	GX1	-0.62689	GX2	0.45889
GX3	-1.000000E-05	GYC0	4.55175	HIC0	-0.00556
HIC1	1.39156	HIC2	-1.0349	HI0	-0.128298
HI1	-0.25	HI2	0.745933	HQNT0	0.25
IBETA	0.33	ICOIL0	-0.285591	ICOIL1	0.956755
ICOIL2	-0.078609	ICOIL3	-0.049228	ICOIL4	0.082168
IC0	-3.	IC1	0.4	IC2	-0.8
IC3	0.8	IC4	0.25	IE80	1.16983
IIC0	-2.305	IIC1	1.0424	IIC2	-0.4044
IIC3	-0.4044	IIC4	0.6924	II0	-1.81442
II1	0.99549	II2	-0.2	II3	-0.819
II4	0.	IK0	0.171	IK1	0.222